Address.

DEMAND AND SUPPLY AS RELATED TO NURSES AND NURSING.

By Fred T. Murphy, M.D., St. Louis,

Professor of Surgery, Washington University Medical School.

In order to consider this problem of the education of nurses intelligently, we must analyze two factors,—first, the demands made upon the nursing profession, and second, the means of meeting these demands. Under the latter heading, we shall have to consider educational as well as physical means, or it might be put, method and material.

The great demand of today is, as in ages past, and as it always will be, the demand of service. We are prone to consider nursing as beginning at Kaiserwerth with good Pastor Fliedner in 1836. That was only the beginning of our conception of the modern trained nurse. Fabiola and Flacilla, fine Roman matrons of the fourth century, A.D., and numberless devoted Sisters, had served, in so far as they were able, the sick; and doubtless Deborah, Rebecca's nurse, who "died and was buried beneath Bethel under an oak," attended her mistress with care and tenderness.

We do well to emphasize this demand of service. It has been with the profession of nursing as with the medical profession, perhaps the greatest factor in preserving the highest ideals, for to render service to the sick is the first essential of both professions. Service, however, is too often interpreted to mean only manual care and sacrifice of self. Both are necessary, to be sure, but we must remember that the development of science has altered materially the possibilities of service. War and religion, the earlier compelling forces, offered and required primarily a manual type of service. Science demands in addition, mental training. Walter Reed served humanity in a much more effective manner by his experiments with yellow fever than dear old Dr. McLaren in his care of the Highland folk; yet Reed sat by no bedside in the attitude of Watt's physician, with whom many of you are familiar.

So it is with nurses, and their possibilities. The requirements of their service can no longer be considered as simply manual. It is far from my intention to decry the need for kindly and sympathetic manual service; in fact, you will remember that service—to serve the sick—was given as the first essential of nursing; but I would emphasize that there are other ways of helping the sick; that modern development has built upon the great fundamental principle and has opened up new avenues of activity for the nurse, no less essential than personal care. Not long since, to become a nurse meant actual bedside care in private or individual work, or the rare teaching or administrative position. Today, while the demand for actual nursing service is perhaps greater than ever before, the possibility of work in other fields has developed in a most remarkable way. As representing these new possibilities, in fact they are demands made upon the nurse by an insistent public, may be mentioned specialized work in the administration of institutions, work in the technical supervision of laboratories, work as assistants and supervisors in operating rooms, work as anesthetists, work as administrators of milk stations and public charities, school nursing, house visiting, social service work in general, and so I might go on almost indefinitely.

In short, besides requiring of the nurse a high degree of technical skill and intelligence in the actual care of patients and as assistant of the doctor, she is being asked to give material and efficient assistance in every health and social problem. This does not mean that every nurse would be qualified or equipped to undertake the special work, any more than it can be assumed that every medical student will become a specialist. To most of you, as to most of us, general work will be the more attractive, and with nurses, as with doctors, general practice, if I may use the term, will and should be the goal than which there is none other more noble or more essential. But to hold that the demands made upon the nurse of today contemplate only manual training, or if combined with mental training, mental training of a very superficial character, is to fail to appreciate what nurses are doing, and what the public and doctors are asking them to do.

To follow our general scheme, let us now consider the means of meeting these demands. First, the physical means. Hanley, in those wonderful verses in which he paints hospital life in the old Edinburgh Infirmary, gives us the picture of the staff nurse, old style,

"With her broad Scots tongue, that flatters, scolds, defies;
The thick Scots' wit that fells you like a mace,"

but hastens to add,

"Patients and students hold her very dear;
They say the chief himself is half afraid of her."

And in contrast paints the staff nurse, new style, as one

"Kindly and calm, patrician to the last,
Who knows that she has exceedingly pretty hands,
And speaks Latin with a right accentuation."

—different types distinctly, but both essentially fine; both women who have labored long that they might better be able to render service to the sick. So today we see the widest possible

* Read at the Convention of the National League of Nursing Education, St. Louis, April 24, 1914.

variations, influenced by community or sectional feeling, by the demands and possibilities of service, representatives from every self-respecting, hard-working stratum of society,—a physical material which has perhaps been lessened by inherent weakness in the method of training, by limitations in the possibilities of service, but so long as there be women, there must always be a large number who will feel more than any other call, this call to nurse. It is an inherent feminine trait. To repress it is possible; to obliterate it, impossible. The physical supply, then, may be said to depend upon not only the demand but the possibility of service and the method of training.

Remarkable as has been the development of systematic trained nursing since the pioneer work at Kaiserwerth and that immediately following in England under your patron saint, Florence Nightingale, we are agreed, I think, that the conditions controlling the education of a nurse have not been and are not uniformly ideal. With certain exceptions, of which none is more striking than the school at Waltham, training schools for nurses have been developed as an integral part of the service of great hospitals, even though many of the older schools were in the beginning governed by a separate board of managers and distinct from the hospitals. Grafted on the purely commercial side of hospital life, the training of the nurse assumed of necessity a commercial aspect. She has been, and is too frequently looked upon as an asset of the hospital rather than an intelligent student serving in the work of the hospital in order to further the hospital's development as well as her own. Don't take it that I would imply that the sole idea in the minds of the governing boards of most of our institutions has been to take service and give nothing in return; for I believe that this idea is unjustly overemphasized today. The hospital had to give that which is essential in the training of the nurse,—that is, patients and facilities,—and if they tended too much to take what they could get in service and give too little in return by way of actual training with other than practical work, it should be looked upon as a whole as an error in method rather than a selfish desire to get something for nothing.

Be that as it may, however, the training of the nurse has been, and still is, in my opinion, in too many quarters, looked upon as distinctly manual, and the training school as a part of the hospital service, rather than a department interested primarily in the education—technical though it may be—of its pupils. The mental development, if considered at all, has occupied a secondary position. Now neither extreme can be looked upon, perhaps, as desirable. A nurse with an extensive theoretical training without practical experience and tact, compares unfavorably with her co-worker who has had this experience and has tact. In the best hospitals, the tendency to balance better these elements of training is evidenced by the increasing number of schools which are really giving sound preliminary and theoretical training, or have affiliated with some educational institution which is prepared to give this work, and also by the addition to training school staffs of paid instructors; but too generally still, the nurse is trained because she can give the hospital something and not because the hospital has something which it wants to give the nurse.

This idea might be further developed by referring to the abuses which have sprung up in the small specialized hospitals, quite unable to offer clinical advantages which are adequate as well as failing wholly in offering theoretical training, where requirements of admission—in fact, requirements of service, except manual detail—were quite overlooked. If these defects have existed in the past, if they are preventing today too generally the preparation of the nurse to meet the demands of the profession, what solution may be offered? It is always easier to offer destructive criticisms than to offer a simple and practical way out. In considering a solution, we must, I believe, draw the line sharply between that which is possible and that which is ideal. Local conditions may prevent absolutely any attempt to develop what seems to me to be the ideal condition. Consider first that which is possible,—the readjustment of existing opportunities. In order to do this, the scope of the demands upon the nurse must be appreciated and the existing, well established schools so modify their curricula and practical training as to meet these demands. Just such meetings as these are necessary to crystallize in the minds of the nurses themselves the needs for these changes,—to educate the nursing body to appreciate the full possibility of today, and while emphasizing these possibilities, to emphasize again, as always, that theoretical training, valuable as it may be, can never take the place of capable, tactful service, in which self is subjugated and the needs of the patient or of the situation made the sole consideration, for trained nursing has been done many a grievous wrong by failure to place service above self.

A demonstration of the needs and the formulation of a solution may be considered to be the first step, the step to be taken by the nurses themselves. The next step is to further educate boards of control so that they will feel a responsibility as to what they give in return for indispensable service; to educate men to appreciate the fact that the demands of today require a manual and theoretical training quite comparable, except in degree, to that of the doctor. To consider next what I would term the ideal development, I know that I am here treading upon delicate ground. Tradition and precedent are not to be pushed aside lightly, for experience is a grand teacher. As I see the essentials for this

development, they are, so far as the form of organization is concerned, an entity for the training school independent of direct hospital control; direction by an existing educational institution or by individuals in sympathy with and able to provide facilities for the education of the nurse as well as for purely technical training; opportunities for hospital service under conditions that will assume the broadest and most exacting and practical training; opportunities for training outside of the hospital in the fields of public health, home visiting, and social service.

Educators are agreed that the successful development of any scheme of organization is dependent in large measures upon the abilities of the teachers; so with the plan proposed. There must needs be combined administrative and technical ability of the highest type, as well as ideals and visions which consider not only the needs of today and tomorrow, but of the future. You know, I am sure, of the development of the training school in certain of our western institutions, than which none is more interesting than that at the University of Minnesota, but it would be more vital, perhaps, if I tell you of the way we have attempted to solve this problem for ourselves here in Washington University, rather than to view and discuss developments elsewhere.

As isolated units, suitable for use in the education of the nurse, we have the medical school, hospitals and dispensaries, the university, the training school, and the social service department,—rather an unusual equipment, to be sure. If we fail to make use of it, the fault will be ours and yours, for the material is mouldable to any degree by intelligent and insistent effort. I include you as a party in responsibility, because we must look to you, as representatives of the profession, for advice and support.

As the first step towards this new organization, we have placed the immediate control of the training school for nurses and the social service department under the hospital committee, which is composed of the heads of the clinical departments, the professor of pathology representing the laboratory subjects, and the hospital superintendent. This hospital committee is answerable to the executive faculty of the medical school, which, as any other university unit, is under the direction of the trustees of the university; that is, we have made the training school and the social service department independent units under university control, thus assuring protection from a too intensive consideration of service, regardless of the return and direction by an institution primarily interested in education.

By this arrangement, we have been able to supply adequate instruction by trained men and women, and laboratory work in the preparatory course which is given in the laboratories of the medical school by the staffs of the various departments. The instruction in the nurses' home and in the hospital is given by trained nurse instructors. The department of English of the University has given various general lectures, and will, beginning with the fall term of this year, give two hours a week of systematic class work.

Two scholarships for post-graduate work have been made available, beginning with the present June class. A curriculum has been inaugurated which provides on an eight hour day basis for a six months' preparatory period devoted to instruction in the fundamental subjects, a year of elementary ward work and instruction, a year in advanced hospital work and instruction, and a six months' period for special elective training in hospital administration, special technical training, or social service work.

Our own hospital provides clinical training in medicine, surgery, and obstetrics, and the St. Louis Children's Hospital affords opportunities for nursing in all types of children's and infants' diseases. This hospital pays the university for service rendered. On moving to our new buildings, the Barnes Hospital replaces the present University Hospital. This may require certain internal adjustments, but we believe that the fundamental ideas of control and development will in no way be altered.

Until recently, our departments of training school for nurses and social service have been separate units under the immediate direction of individual heads, though both were under the direction of the same committee. On April 15, Miss Stimson was made head of the department of nursing and social service. We believe that the combination of these two departments, each to be administered by a distinct and adequate staff, will increase the efficiency of each, and make possible a development which is limited only by the opportunities of our community and our ability to meet these opportunities. Let me make it quite clear that we are not trying to combine the technical training of the nurse and the social service worker. We recognize fully that the demands of each service may require a wholly different preparation, but we are convinced that a certain amount of social service work may require elements of nursing, and that much of the nursing work might be better done if to the technical training were added the elements of the social service work. We want to supplement the one with the other wherever that may be desirable, without in any way subordinating either. We recognize that, owing to physical difficulties incident to our present location, it has not been possible to carry out in every detail all that we might have wished. For these omissions we can only express regret.

Now as to the hopes for the future. If the fundamental idea is accepted that the training of the nurse is as essentially a mental as a manual problem, then this training, just as training in any other educational line, can be best fur-

thered as a department of a university. This we definitely plan to accomplish. Up to the present, limitation in the number of applicants, with a sufficiently extensive preliminary training to admit them on the same educational level as the university students, has prevented this. The university, however, stands ready to establish a department of health and nursing just as soon as we can conscientiously advise them that the work is here to do. With the organization of such a department, a diploma from this department, whether it represents the intensive instruction in the specialized training of the nurse or along the lines of social service, will carry with it the same distinction as a university degree given in other departments.

On such a basis, the training of the nurse immediately becomes a profession. Such a training is not alone applicable and desirable for those who expect to do this as life's work, but it should offer, beyond the mere technical side, a training equal to that of the university or college as a preparation for that greatest of all duties and pleasures—homemaking.

I believe that we have in no sense seen a glorified vision of the possibilities of this development in the training of women. The demands of the day require it; the available material, we believe, will justify it. Surely, satisfying this fundamental principle of supply and demand, the result cannot but be an advance.

Original Articles.

X-RAY EVIDENCE IN EARLY AND LATENT CANCER OF THE STOMACH.*

BY FRANKLIN W. WHITE, M.D., BOSTON,

Instructor in Medicine, Harvard University; Assistant Visiting Physician, Boston City Hospital,

AND

RALPH D. LEONARD, M.D., BOSTON,

Assistant in X-ray Service, Boston City Hospital.

[From the X-ray Department of the Boston City Hospital.]

MEDICAL literature is filled with accurate descriptions and beautiful x-ray pictures of late cancer, but we all know that many cases of early cancer and many cases of latent cancer have escaped detection by former clinical methods. The present study was made to find out how far the x-ray is helping to discover these early and latent cases. The early symptoms and chemical changes due to gastric cancer are often vague. We hoped to find that the early anatomical changes in the stomach wall, which could be detected by the x-ray, would prove to be more definite and characteristic.

The patients are recent ones, in order to make the most of recent improvements in x-ray technic. They were carefully studied by other methods of diagnosis.

The diagnosis of cancer was verified by operation, autopsy, or an unmistakable course. Most cases in which cancer was ruled out have been followed to operation, or for six months or more after examination, to verify the diagnosis as far as possible.

The material for this study consists of 114 hospital and private cases, examined within a year and a half by clinical and x-ray methods in which cancer of the stomach was suspected or found. In 40 cases cancer was ultimately proved and in 66 ultimately ruled out, 8 remain doubtful at present. Thirty-three cases of cancer are excluded from this paper as being well developed, leaving 81 early, latent or suspected cases. These 81 cases were classed at the end of our clinical and x-ray examination, as follows: 1 (or 2) early, 6 latent, 62 ruled out, 12 (or 11) doubtful. In all cases a complete physical examination was made, usually including tests of secretion and motility of the stomach, and an examination of the feces and gastric contents for blood. With the x-ray both fluoroscope and plates were used, immediately after a bismuth meal and at six and twenty-four hour intervals.

In 33 cases of proved cancer, the diagnosis was definitely made by the well-known signs and symptoms and the x-ray examination was merely confirmatory. The remaining group of 7 cases of proved cancer, though small, is very interesting and represents either early or latent cancer. Many cases of cancer are called latent in general practice because no thorough examination of the stomach is made. When examination is made they are readily discovered. There is another group which are truly latent, the cases which remain hidden or very doubtful even after careful clinical examination of the stomach and which may be first demonstrated clearly by the x-ray.

The per cent. of these doubtful and difficult cases is rather high in this series as they are the ones which were most frequently seen in consultation and most frequently chosen for x-ray examination at the hospital.

Technical Evidence. The direct demonstration of the cancer itself is of far more value than indirect evidence, such as motility and residue.

The most important evidence is a constant defect in the outline of the stomach on filling it with bismuth. In the very earliest cases this is due to a slight local thickening with disturbed peristalsis, and hard or impossible to recognize as cancer. In later cases the defect is irregular in outline and of any size, and looks like a jagged bite out of the stomach shadow. It may be annular at the pylorus and extending upward, making the stomach funnel shaped with a long narrow canal. The shadow may have a worm-eaten appearance. There is usually rigidity of the wall and local absence of peristalsis.

* Read at the twenty-ninth annual meeting of the Association of American Physicians, Atlantic City, May 12-13, 1914.

Cirrhus growth may thicken the wall without projecting into it, making a "leather-bottle" stomach with little or no peristalsis and high position in the abdomen.

The stomach usually empties rapidly in the latent cases. This is usually due to the relaxed pylorus found with low secretion, or occasionally to a rigid open pylorus, involved in cancer.

If the pylorus is obstructed the stomach empties slowly. Such cases may be confused with ulcer or adhesions about the pylorus. In some small cancers at the pylorus which cause early obstruction, the obstruction may be marked and the deformity slight.

The malignant degeneration of an old ulcer may present great difficulty in diagnosis. Slight or marked irregularity in outline favors cancer, but is not distinctive. To put this more in detail, we may say, that the chronic ulcer is often definite, the transition stage from ulcer to cancer usually indefinite and impossible to diagnose, the later cancerous stage usually definite and characteristic.

At the cardia the character of the shadow frequently does not distinguish cancer from other causes of obstruction. We may say in general that the technical evidence of cancer is *absolutely characteristic* in only part of the cases. In the majority, it must be judged in connection with other clinical data.

Early Cancer. The word "early" in this connection must include very small cancers. It is practically impossible to tell the "age" of many cancers of the stomach.

For early diagnosis of cancer, we must see the patient early.

What brings the patient for examination? His symptoms. We shall not see him till he develops some. These early symptoms and signs of cancer are often vague. The important question is: Are the early anatomical changes in gastric cancer, discoverable by x-ray, more definite and characteristic?

We have tried to avoid delay in examinations and have used the x-ray in all suspicious cases in hopes of discovering the anatomical signs of early cancer.

This faithful search for early cancer in a large number of suspected cases has given little result. The earlier the cancer the less clear the picture with the x-ray as with other methods, until a point is reached where the evidence is very doubtful indeed. In primary cancer the small area of induration in the earliest cases may be in no wise characteristic, and in cancer developing on ulcer the transition stage may be very difficult or impossible to diagnose by the x-ray.

In short, while anatomical changes in the stomach wall, discoverable by the x-ray, accompany the early clinical symptoms, the anatomical changes themselves are not always definite and characteristic of cancer.

We have, however, one proved case with a possible second (both examined by Dr. A. W. George):—

A man of 50 years had mild attacks of epigastric distress and vomiting for several years. Physical examination was practically negative. Gastric secretion was normal. No blood was found in gastric contents or feces. There was slight 12-hour gastric stasis. A diagnosis of doubtful chronic ulcer was made. A diagnosis of cancer was made after x-ray examination on the basis of a very small annular defect at the pylorus, showing slight but definite irregularity, and resection urged. The surgical diagnosis at operation was chronic inflammatory tissue, but resection was done. The pathologist's report on gross examination was the same, but cancer was found on microscopical examination. We must give the radiologist the credit of making the correct diagnosis, and if such results are confirmed by a later series of cases they will prove of great value. We do not feel sure, however, that such x-ray evidence will always distinguish cancer from ulcer.

The second case, age 50, had several years before, severe distress and vomiting of several months' duration, some mild but continuous symptoms since. Physical examination showed nothing abnormal. There was normal gastric secretion, no stasis and no evidence of bleeding. A diagnosis of very questionable old ulcer was made.

X-ray examination showed a slight defect at the pylorus, very slightly irregular, normal motility. A diagnosis of probable early cancer was made. At operation a slight induration was felt at the pylorus, but the surgeon did not feel justified in operating upon the stomach. It is *possible* that in this case also the x-ray may precede the surgical diagnosis of cancer. It is also possible that the diagnosis after the x-ray is an error. Time will tell. Such early diagnosis, if experience justifies it, is brilliant and important. Further data is needed before passing an opinion.

One more case should be mentioned in this connection. A man of 54 with short history of distress and vomiting and loss of weight, showing poor gastric secretion, some stasis, and occult blood in the feces; in short, a "well-developed" case clinically was shown by x-ray examination to be relatively "early" to have a stomach wall almost entirely intact and a very small cancer at the pylorus, and proved an ideal case for operation. The x-ray examination did valuable service in urging the operation.

We may briefly summarize our experience in searching for early cancer as follows:—

One of the greatest difficulties has been in *getting the patient early.* The first examination when positive has usually discovered well-developed, not early cancer. Our x-ray evidence of early cancer is very scanty, but we believe the method will occasionally aid in its discovery and should be given a trial in every suspected case. The better the x-ray technic and the more thoroughly the case is studied, the better the chance for an early diagnosis. Well marked cancers are easily found with fluoroscopic examination and a few routine plates. This is not true of early cases.

Dr. Cole* has recently stated that gastric cancer at any stage of development may be detected with as great a degree of accuracy as bone fractures. We cannot believe this is true, regardless of the number of plates taken. Neither do we believe that at present a positive or negative diagnosis after x-ray examination is as accurate in early cancer as an exploratory laparotomy, or can replace it. On the other hand, patients of cancer age with few symptoms will consent to an x-ray examination readily when they would refuse an exploration.

The x-ray will occasionally show in an evident case with definite symptoms and signs, that the cancer is small and mobile and ideal for operation. This is almost as important as early diagnosis.

Latent Cancer. Cancer of the stomach may remain latent or hidden because no careful search is made for it. It is quite common nowadays for the radiologists to discover a large cancer in a stomach which has *never been examined before* by any method. These are not latent in a strict sense; they are found when looked for. On the other hand, there is a small group of cases which remain hidden or very doubtful after thorough clinical examination. These are latent in the strict sense in which we use the word in this paper.

We have been impressed with the size and extent of some of these latent cancers in comparison with the vagueness of gastric symptoms, the prompt emptying of the stomach, and sometimes the lack of significant bleeding, and also the ease with which they were discovered by the x-ray.

In our six latent cases, the diagnosis was verified by operation. The patients were all of middle age or beyond; the symptoms were either vague and apparently due to age, arteriosclerosis or syphilis, or pointed to the bowel or gall-bladder, when actually the stomach was involved. In other cases the diagnosis of ulcer was made, and in others gastric catarrh or achylia. Prompt emptying of the stomach was the rule. The gastric secretion was either within normal limits, or if low, was attributed to functional disturbance, age or catarrh. Blood was either absent (in one or two cases) or not considered significant of cancer, being laid to slight abrasion of the stomach by the tube, to piles, ulcer, syphilis, etc. No tumor was felt.

We will consider the types of latent cancer of the stomach more in detail.

Case Called Senile or Functional. We have one example of this class where the vague symptoms and loss of weight seem to be well explained by the process of growing old, and the absence of gastric stasis (where the pylorus is not involved), and the lack of significant bleeding wake little suspicion of cancer. Low gastric secretion is considered functional and due to increasing age. The presence of some other lesion like interstitial change in the kidney, is doubly misleading and seems to account for the symptoms. The cancer was readily discovered and located with the aid of the x-ray on the lesser curvature, not obstructing the pylorus.

Case Called Catarrh of the Stomach. When chronic gastric catarrh is present, even though the patient is carefully studied and followed for years, the final development of cancer may come so quietly as to escape observation. The gastric secretion has long been so low that cancer does not lower it. There may be no 12-hour stasis. The blood test may not be significant. In this case the passage of a stomach tube had often provoked a tiny streak of blood and the patient had piles.

Case Called Syphilis. The presence of syphilis shown by skin or bone changes and a strong Wassermann reaction may seem to explain all symptoms of a general kind, loss of appetite and moderate loss of weight, dull pains and distress and even gastro-intestinal symptoms. Even the presence of blood in feces or gastric contents may be explained by syphilitic ulceration of the gastro-intestinal tract, and thus the evidences of cancer may be confused and overshadowed by the presence of the serious disease, syphilis, which is recognized.

The x-ray evidence in this case was definite and clear, but sometimes it is not. Syphilis sometimes resembles cancer too closely to be distinguished.

After x-ray examination we have two such syphilitic patients, both of cancer age, classed among the "doubtful cases." (One proved to have cancer also, the other was diagnosed as syphilis at operation and subsequent history for a year confirms it.)

Cases Called Ulcer. Patients with a history of chronic recurrent ulcer, extending perhaps over many years, may readily develop cancer without important symptoms which call attention to the change. The weakness, pain, loss of weight, vomiting or blood may all be laid to ulcer. Full or high gastric secretion helps to conceal the cancer. The bismuth defects in these cases were irregular, bitten out and typical of cancer, and in one case surprisingly large.

The x-ray usually helps the diagnosis between cancer and ulcer, and in advanced cases will clearly distinguish. In a large number of the cancer cases, however, it will *not* differentiate between old ulcer and the malignant degeneration of old ulcer (see doubtful cases). Cole* in a recent paper makes no attempt to distinguish by the x-ray between chronic ulcer and cancer, and groups them together as "surgical cases."

Case Called Cancer of Other Organs. The patient's symptoms may point strongly to the bowel, or gall-bladder or other abdominal organ,

* The Positive and Negative Diagnosis of Gastric Cancer by Means of Serial Roentgenography. L. G. Cole, *N. Y. Med. Jour.*, Feb. 14, 1914.

and if at the same time the gastric functions are well preserved, even an advanced cancer of the stomach may be overlooked, and a diagnosis made of cancer of the bowel or gall-bladder. This is far less serious than overlooking cancer altogether, for such cases are likely to be explored, but the vagueness of the clinical diagnosis contrasted sharply with the definite diagnosis of cancer of the stomach made at once after x-ray examination.

In looking over these latent cases, it is important to note the position of the cancer. Most have been in the *median* part of the stomach, where they are hard to recognize clinically. No tumor is felt because the cancer is behind the ribs, the wide lumen is not obstructed. We have found that in most cancers in this region, even the large ones, the stomach empties more rapidly than normal. The x-ray evidence has not only helped in discovering these latent cancers, it has also located them definitely and has shown their size and extent. It has given valuable evidence about operability in many cases (though we should often hesitate to decide this question on x-ray evidence alone). On the other hand, the value of the diagnosis to the patient is limited by the fact that almost all the latent cancers discovered were large and inoperable.

We have discovered no latent cancers of the *cardia* in this series. The diagnosis has either been clear before x-ray examination, or else has been doubtful after it. The early diagnosis of cancer of the cardia has less value at present than in cancer lower down, owing to the great difficulties of radical operation on the cardia.

Suspicious Cases. X-ray evidence has proved very valuable in ruling out cancer in a long list of suspicious cases, 63 in number. These include people of cancer age with various combinations of one or more suspicious symptoms, such as loss of weight and strength, anemia, epigastric pain or distress, vomiting, blood in vomitus or feces, epigastric tumor, poor gastric secretion, gastric stasis, and in which the final diagnoses were as follows: Senility, arteriosclerosis, gastric neuroses, achylia, gastric catarrh, pernicious anemia, cirrhosis of the liver, cyst of the liver, gastric ulcer, syphilis, tumor of kidney, and other abdominal tumors, cardiospasm, chronic appendix, intestinal stasis, adhesions of gall bladder to pylorus, tabes. Most of these patients were faithfully followed to operation or autopsy or for six or more months after examination to verify the diagnosis as far as possible. This has been our hardest task, but the results have been striking. Up to this time in no case in this group where a normal picture of the stomach was found, has cancer been proved.

We have discovered very few *early* cases and yet the method proved a great help in ruling out cancer. How explain this paradox? How can we rule out early cancer if we are not sure of detecting it? We believe the explanation is that the majority of patients did not come for examination in the very early or "incubation" period of cancer. Either a fairly developed cancer was present and readily found, or the symptoms were not due to cancer and it was easily ruled out. When patients who have had symptoms a long time come for examination and we find a normal picture of the stomach, we can definitely rule out cancer as the source of symptoms, and free the patient from uneasiness and constant observation.

Doubtful Cases. The following cases illustrate the limitations in x-ray evidence:—

In a moderate number of cases (12) the diagnosis remained doubtful after all examination. These were mostly elderly people, all but two were aged 55 to 68. In order of their frequency they were classed as follows: 6 ulcer or cancer, 2 syphilis of stomach or cancer; 2 organic stricture of cardia, nature not determined, probably cancer in 1 at least; 1 doubtful early cancer of stomach already referred to; 1 adhesions or cancer. All these cases had some defect or deformity of the stomach, 3 large, 5 moderate, and 4 small. Obstruction of the cardia was present in 2 cases and obstruction of the pylorus was moderate in 8, slight in 2, absent in 2. An absolute diagnosis between indurated ulcer and malignant degeneration of old ulcer is quite often impossible. Half the doubtful cases were of this type. Gastric secretion was practically normal; food stasis and blood were present.

Cases of syphilis sometimes resemble cancer too closely to be distinguished. Our two patients had triple positive Wassermann reactions and good-sized, irregular tumors in the median part of the stomach. Gastric secretion was very low and no stasis occurred. One at operation was considered syphilis of the stomach, the other cancer.

Cancer of the cardia is difficult in many cases to positively diagnose or rule out. The cardia is less accessible than the pylorus, cannot be manipulated, changes in peristalsis noted, etc., and the contour of the lesion is less clear than at the pylorus. Our two strictures proved to be, one cancer, one benign.

In one man of 55, it was impossible from history, examination, or x-ray, to decide between gall-bladder adhesions and early cancer. There was previous history of colic and jaundice, the gastric secretions were a little below normal, there was slight gastric stasis and no blood in gastric contents or feces. A small defect was found, involving pylorus and duodenum. Operation refused.

The doubtful early case of cancer has already been discussed.

Mistakes. The following four cases illustrate errors in x-ray and other evidence. The diagnosis made *before* x-ray examination was cancer in three cases (two of stomach, one of gall-bladder) and in one chronic duodenal ulcer. The chief mistake lay in our anxiety to make as early a diagnosis of cancer as possible.

Three of the patients were elderly, 51 to 57 years of age; their symptoms and loss of weight were marked. Secretion was lowered in two; blood was found in one, in feces and gastric contents. There was no gastric stasis. In short, we suspected cancer and overstepped the mark in our anxiety to make an early diagnosis. In three cases after x-ray examination slight defects and irregularities in outline were interpreted as *early cancer*, two primary, one on an ulcer base, while in all three cancer was definitely ruled out, in two by operation (finding one ulcer and one stomach with a few adhesions, evidently due to a healed ulcer), and in the third case, in which operation was refused, by practically complete recovery and good health ten months later. In the fourth case the error in diagnosis after x-ray examination was less important, but less easily explained. It consisted in diagnosing a tumor, external to the stomach, adherent and indenting and deforming it, when it actually was a cancer of the stomach itself. The patient was a man of 30 with pain and "constriction" in the epigastrium for a year, vomiting, no blood seen, loss of fifteen pounds. There was slight twelve-hour stasis and high normal secretion. Blood was found intermittently in the stomach contents. An indefinite mass occasionally felt in the epigastrium. The clinical diagnosis was cancer of the stomach. X-ray examination showed an hour-glass deformity, and a diagnosis was made of tumor in the region of the spleen, deforming the stomach by indentation and spasm. The man's age and full gastric secretion may have biased the radiologist in his diagnosis. Exploration showed an inoperable irregular tumor the size of a baseball, in the middle of the greater curvature, adherent posteriorly and extending as far as the spleen.

We have not thus far found a single case in our series in which cancer has been proved after being ruled out by our clinical and x-ray examination.

Our errors have been of commission not omission. The cases diagnosed cancer, which were not cancer, were partly the result of a desire to make a definite diagnosis in as many cases as possible. The moral is to recognize the limitations of x-ray evidence. This is the only way to avoid mistakes; in some cases the diagnosis must be left doubtful.

The mistakes we have been able to find are few; some may have escaped us in spite of careful search.

Dr. Richard C. Cabot* in a recent paper found 72% of correct diagnoses in a series of cases of gastric cancer studied at the Massachusetts General Hospital. These cases dated back nearly twenty years. During that time the clinical study of the stomach has become more complete and accurate. Functions are carefully tested and occult blood regularly looked for. It is interesting to compare with these older figures the correct diagnosis made in 34 operated cases in our series: before x-ray examination 83%, after x-ray examination 89%. (The balance of 17% and 12%, respectively, represent cases remaining doubtful after all examinations and errors in diagnosis.) Modern clinical methods have helped much, and now the x-ray takes us another step forward to better diagnosis of gastric cancer.

* Common Diagnostic Errors. *Jour. of Med. Soc.* of New Jersey, 1912.

SUMMARY.

In the very large majority of cases of cancer of the stomach at the time when they have presented themselves for our examination and if the stomach is thoroughly examined for secretion, motility, and bleeding by the usual clinical tests, the x-ray evidence has merely confirmed the diagnosis already made. These more or less typical cases we shall pass over as they are outside the scope of this paper.

Our x-ray evidence of *early* cancer of the stomach is very scanty; anatomical changes in the wall appear at the time of the early symptoms, but the early anatomical changes are hard to recognize; the earlier the cancer, the less clear the evidence.

The small areas of induration in early primary cases are often not characteristic and the transition stage in cancer developing on ulcer is very difficult or impossible to distinguish from ulcer. The difficulties may be realized when we say that we have been more often wrong than right in our efforts to diagnose early cancer with the help of the x-ray.

Very rarely (in one or possibly two cases), in this series an *early* diagnosis has been made. We believe the very small number of these early cases is due in part to the limitations of the method, and in part to the lack of sufficienly early examination.

The most important technical evidence is an irregular defect, with rigid stomach wall. The better the technic, the better the chance for early diagnosis. A few routine plates and fluoroscope examinations may not be enough. It has recently been said that by using a large number of plates, gastric cancer at any stage of development may be as accurately detected as a bone fracture, and also that x-ray diagnosis, whether positive or negative, is as accurate in gastric cancer as a laparotomy. We do not agree to either statement.

Early examination is necessary for early diagnosis. In order to find *early* cancer, patients must be examined more early and often than is now the rule. The *ideal* seems to be early examination of every patient of cancer age who has digestive disturbance.

While our x-ray evidence of *early* cancer is very scanty, we believe the method will occasionally aid in its detection, and should be given a trial in every suspected case.

It is well recognized that a small group of cancers, probably not over 10%, remain latent even when well developed. This group increases in size if the patients are carelessly examined, and shrinks if modern clinical methods are faithfully used. In this small group of latent cases x-ray evidence has been valuable in making

a clear, definite diagnosis when other signs were doubtful. This has most frequently occurred with cancers in the *median* part of the stomach, in which the stomach emptied rapidly. The most common latent cases were cancers developing on an old ulcer, or anacid cases called senile, catarrh or achylia, or patients with syphilis. We must admit that the value of the diagnosis to the patients was limited by the fact that all our latent cases were well developed when discovered, and resection was only possible in one instance.

X-ray evidence has been valuable in helping to rule out cancer in a long list of suspicious cases. In no case where a *normal picture* of the stomach was found, has cancer been proved to exist. In our whole group of cases we may say that either *no cancer* or *well developed cancer* was usually found. We believe this occurred because most cases did not come for examination in the "incubation" period.

X-ray evidence has its limitations. After all examinations a doubtful group remained, about twice as large as the group of latent cases discovered. These were cases of disease at the cardia or where the diagnosis lay between cancer and ulcer or syphilis.

A few mistakes were made in our anxiety to make an early diagnosis in suspicious cases; we overstepped the mark three times and diagnosed cancer where it was absent. We must recognize the limitations of the method and occasionally leave the diagnosis doubtful and have the patient explored.

In spite of these limitations and errors the x-ray evidence had distinctly improved our diagnosis. In 34 operated cases, the correct diagnosis before x-ray examination was 83%, after x-ray 89%. It is almost needless to say that we have studied the x-ray findings in connection with the other clinical data and have not attempted to build a diagnosis on x-ray data alone. This addition of the x-ray method to our other examinations gives an accuracy and completeness to our diagnosis impossible with either alone.

In addition to aiding in diagnosis, the x-ray evidence has definitely located the cancer, shown its size and extent, and helped decide about operability. It may show that a cancer with marked symptoms is small and mobile and ideal for operation.

In short, the x-ray evidence has been a help in discovering and localizing latent cancer and an equal help in ruling out cancer. Our known mistakes have been few, and the group of doubtful cases rather small, and it seems reasonable to expect that with better technic and greater experience, less mistakes will occur and less cases remain doubtful, and with more early and frequent x-ray examination of patients of cancer age, that early diagnosis will be more frequently made, and latent cases discovered earlier, so that radical operation will be possible.

TRAUMATIC ENDOCARDITIS.

By S. G. Webber, M.D., Brookline, Mass.

The situation of the heart between the sternum and the spine, exposes it to severe injuries from blows on the chest, especially in the young, whose chest walls are very yielding. The heart is compressed between the sternum and the vertebrae.

The severer lesions caused by external violence, as rupture of heart or pericardium, rupture or tearing of valves, give rise to symptoms which are recognized very soon or immediately after the accident and are generally fatal at once or after a comparatively short time. They are easily diagnosed, and reports of many such cases are found in medical literature.

Less severe injuries may give rise to slight lacerations of the cardiac muscles or to ecchymoses into its substance or just beneath the endocardium which cause only temporary inconvenience, the symptoms thus produced soon disappearing. These slighter injuries may, however, give rise to changes in the valves which develop slowly and can be recognized only after the lapse of a longer or shorter time. These slight injuries have often been overlooked or entirely ignored as causes of valvular disease, the cardiac changes being ascribed to other causes.

Several cases have been reported in which the early cardiac symptoms have been absent or of short duration and have seemed insignificant. After an interval of apparently restored health, valvular changes have developed, with their usual consequences.

M. L. Rembaud[1] says that in certain cases traumatism can be the true determining cause of a cardiac affection.

In cases of endocarditis, vegetative hemorrhages; in chronic cases, cicatrices and valvular scleroses are found, also hypertrophy of the heart.

Immediate signs of endo-myopericarditis may be wanting, yet there is generally precordiai pain, dyspnea, palpitation. Then at the end of some days, sometimes months and more, the usual symptoms of pericarditis, of a myocarditis, or of an endocarditis are developed,—mitral 12 times, aortic 7 times.

The course of pericarditis is generally rather acute. Myocarditis has a chronic course, and often ends in death several years after the injury. Endocarditis may be acute and cause death in some days. Generally it is chronic from the beginning, and the injured, who has been able to return to his work, complains some time after of symptoms of cardiac insufficiency; examination shows valvular lesion.

Richard Bernstein[2] collected and analyzed 126 cases. He found that the cardiac symptoms appeared immediately after the accident in 85 cases, 67.6%; after an interval of one month, 22 cases, 17.5%; after interval of one year, 6

cases, 4.7%; after interval of more than one year, 9 cases, 7.1%; time not mentioned, 4 cases, 3.1%.

Bernstein reports two cases. One was a man fifty years old, who fell backwards down stairs. For eight days he passed bloody urine in varying quantities. After five weeks he had pain in the cardiac region,—dyspnea. Eight months after there was diastolic murmur at the base. At night attacks of angina pectoris. Aortic insufficiency.

Another case he reports is that of a laborer twenty years old, who fell from a tree, landing on his neck and feet. No other accident. He had attacks of sense of pressure and suffocation. There was insufficiency of the aortic valve.

A laborer, fifty-seven years old, fell upon his chest. No external injury. Cardiac symptoms were at once noticed. Six years later there was aortic stenosis.

E. Barié[3] reports several cases, two of which are as follows:—

CASE 16. A man 44 years of age was hit in the precordial region. After a short time he was able to resume work. Not until after two years did he begin to feel the first functional trouble, epigastralgia, palpitation, slight sensation of suffocation. Fourteen years after the accident there was considerable hypertrophy of the left side; a strong shock was felt at the moment of systole. A diastolic murmur was heard at the base; a double murmur was heard in the crural arteries.

His Case 17 was that of a man who leaped from a wall twelve feet high, fell, striking the ground with his chest. No appreciable alteration of his health for four years; then he began to expectorate blood. There was insufficiency of the aortic valve eleven years after the accident.

A. Herzfeld[4] reports a case in which the cardiac symptoms were present immediately after the accident. At the close of his paper he says: "Traumatic endocarditis frequently develops slowly and insidiously, so that we may speak of a latent period or a period of incubation. The patient may suffer little during this period, and, therefore, does not seek advice until new complications arise. In this way it may happen that a traumatic endocarditis, although of longer standing, may not be detected until some time after the injury. The latent period, or period of incubation, may last weeks, months or even years."

Dr. Ritter[5] reports a case of injury by a severe blow on the chest with fracture of the sternum. No elevation of temperature nor increase in frequency of pulse. After five weeks he left the hospital, nothing abnormal in heart or lungs. Four months and a half later there was a presystolic murmur, clearest at pit of the stomach. Stenosis of mitral valve.

Ulrich Luckinger[6] reports a case where the patient fell from a load of hay. There was no evidence of fracture of rib or sternum nor injury of any thoracic organs. Subjective symptoms were absent. Until the fourth day all went well, then there was palpitation, difficult breathing; there was increased cardiac impulse, a small weak pulse, systolic and diastolic murmur at apex, and pericardial friction. There was also friction of the pleura. Here was myocarditis, pericarditis and pleurisy, beginning three or four days after the injury. He thinks the endocardium was primarily affected, the inflammation extending to the pericardium and pleura.

J. C. Wilson[7] of Philadelphia reports a case where for four months no cardiac symptoms showed after a fall. A man, aet. 36, known to have had no heart disease previously to the accident, received a violent blow on the chest. There was no fracture of ribs; there was abundant hemoptysis. In two or three days he recovered from the immediate effects of the accident. Four months later he had inconstant pain just before attack of blood spitting, a more or less constant sense of weight in lower part of the left posterior lateral region of the chest, no dyspnea, no palpitation, respiratory murmur was normal, no râles. Pulse small, regular, 80-86. Temperature 98. Blood pressure: systolic, 125; diastolic, 80. There was a loud presystolic murmur and thrill in the mitral area and to right. No sign of aneurysm nor of pericarditis. Urine normal.

Heidenhain[8] reports the case of a sailor who worked on a dredger. In the middle of May he was struck by the winch when something broke in weighing the anchor. He received a severe blow in the breast. He had severe pain in the breast and was not able to engage in severe labor, but continued to work. By the end of June he had to give up work. In November there was enlargement of the heart, a strong systolic murmur and a slight diastolic murmur. The diagnosis was stenosis and slight insufficiency of the aortic valve, insufficiency and slight stenosis of the mitral. The mitral insufficiency is probably a relative; the stenosis of the mitral is so insignificant that clinically it is entirely in the background. The aortic stenosis is much the more important. Marked dilatation and hypertrophy of the left, slight of the right ventricle.

Barney Yeo[9] reports a case where a man fell down a flight of nine stone steps. He took no notice of the accident at the time, but three weeks after a loud murmur had developed. After two years and a half he died. At autopsy his heart was found greatly hypertrophied; the right anterior and posterior segments of the aortic valve were separated from the wall of the aorta for a distance of a quarter of an inch.

Ernst Romberg[10]: "The significance of accidents remains somewhat uncertain in the apparently largest number of cases in which the patients suffer a contusion of the chest wall, a severe shaking up of the whole body, and gradually a chronic heart disease is developed. The discomforts or affections begin oftentimes not immediately after the accident but some days or some weeks later. They appear first when the patient has imagined himself somewhat better. Sometimes there comes at first only subjective discomforts of the heart, strong palpitation. The objective examination of the heart gives at first no abnormal condition. One is inclined to refer the symptom to traumatic neurasthenia or hysteria. Then appear, gradually, coming ever more strongly to notice, the signs of valvular affection,—very often in these cases a mitral or

acrtic stenosis or the symptoms of a chronic insufficiency. It may be months before the symptoms come to a complete development, and the further course differs in no way from the ordinary affections of this nature."

If one can follow the development of the cardiac affection from the accident, a clearly accidental coincidence of the beginning of the heart disease is scarcely to be accepted, and it is to be noted as most probable that the traumatism, the contusion, the concussion is answerable for the development of the cardiac affection.

C. Nelaton[11] states that small tears may occur involving only the free border of one of the sigmoid segments. These borders become thickened, rough, calcareous, and leave slight fissures between, rendering the valves insufficient. There exist constantly around the ruptures, vegetations and roughness, which may extend to the mitral and cause insufficiency there. The cardiac muscles, often healthy, may be diseased.

The following case is of interest as being one in which there were slight cardiac symptoms immediately after the accident, which disappeared, and for a time, not determined by the history, the patient was free from any prominent cardiac symptoms. After an interval, not determined by the history, there were symptoms due to commencing valvular disease. He could not run so long as before the accident, could not do heavy work. Three and a half years after the accident serious cardiac lesions were found.

At no time in his life, either before or after the accident, did he have any affection which could give rise to valvular disease. He never had any illness, rheumatism, any eruptic or other fever, never syphilis nor gonorrhea, never any other accident.

J. G. Aet. 16, a well developed, rather large and strong boy, was riding about 9 p.m. in a wagon with his brother, on Dec. 24, 1908. The streets were icy and snowy. They were on the electric car track in East Boston, near the Chelsea bridge, going towards Chelsea. A car struck the rear of their wagon, lifted it, turned it over and around, clear of the other track, throwing the horse down. J. G. was thrown across the street; a man passing found him lying with the left side of his chest on the curb stone, his right chest projecting over the gutter. He was picked up, taken to the Relief Hospital in East Boston, arm bandaged and later was sent home. He was unconscious for about half an hour. He was scratched and bruised on the left side, dirt was ground into left arm and leg, black and blue on the upper part of his left arm and shoulder. His head, shoulder and back pained him; he could not lie on his left side; he had dizzy and fainting spells often, —during the first week three or four times a day; these continued for six weeks. At first the pain was so severe he was faint and had cold sweats. His breathing was smothered-like for five or six weeks; he seemed to choke up in his back and chest in the region of his heart. When he had hard spells of breathing his face would flush,—become dark red. He did not spit blood.

He could give only an imperfect account of his own conditon. Most of the preceding was obtained from his mother.

About ten days after the accident he was taken to the Massachusetts General Hospital. An x-ray of his left shoulder showed a separation of the upper epiphyses of the humerus.

I saw him Feb. 9, 1909. Then he complained mostly of his back and left arm. His head was pretty well. Once in a while he had pain at the back and on the left side, then he was dizzy. When he lay on his left side at night there was pain in the middle of his upper arm and his left hand went to sleep; there was some difficulty in using his left hand. He complained chiefly of his back and that he could not carry weight on account of pain there.

On examination it was found that the motion of the left arm was restricted at the shoulder; there was tenderness above the left clavicle over the nerves of the cervical plexus and somewhat in the axilla. There was no tenderness over the nerves in the arm. The sixth to the eighth dorsal spinous processes were somewhat tender and stooping forward caused pain there. Heart sounds and area of dullness were normal.

He was not seen again until Sept. 5, 1912. He was then working at teaming. He was a tall, fleshy strong-looking man. He could not lift heavy weights alone. If he tried he had pain across lower dorsal region. He could run only about half as long as before the accident; if he continued running he got out of breath. He could not do as heavy work.

There was a strong systolic souffle over the whole cardiac region, loudest at the edge of the sternum opposite the fourth rib; a very slight souffle at beginning of diastole. The impulse was felt at the seventh intercostal space about half an inch to right of the left nipple; the dullness extended to half an inch to left of the left nipple. He had been walking some distance just before I saw him. After sitting quietly for some time the sounds were much lower, but on exercising they became louder and the pulse went from 78 to 114. There was a very slight edema of the legs. When the murmur was loudest it could be heard at times over the left carotid.

When he had to work hard he said he was out of breath much more than before the accident, and the work made his heart beat more.

Since I first saw him in 1909 he had had no illness. Urine was acid, sp. gr. 1022, no casts, some epithelial cells, some urate crystals.

He sat habitually with his left hand on the upper part of his thigh, his arm raised at his side and a little forward, forearm nearly perpendicular.

I saw him on Jan. 9 and 19, 1913, on June 10, 1913, and once or twice since. On June 10 I saw him with Dr. W. H. Robey. The opportunity to examine the heart then was in some respects better. I found then that the murmurs were clearest over the aorta and the mitral, and much less distinct between these two points.

An explanation of the development of endocarditis some time after an injury may be found in those cases of injury causing early death from lesions other than cardiac where at the autopsy slight lesions of endocardium or myocardium were found to have been the origin of commencing inflammatory changes.

J. Riedinger[12] mentions as one of the lighter

affections small ecchymoses within the heart. He says little notice has been taken of the hemorrhages, but they deserve notice since they may not be absorbed and may cause changes in the valves similar in appearance and effect to valvular changes from other causes. They can occur without severe immediate disturbance.

He reports the case of a woman 54 years old, who fell from the third story into the street. Died three days after. Fracture of lumbar vertebrae, of occiput. On the aortic valve was a thin exudation. The valve and its vicinity were infiltrated and colored by the blood. On the mitral the insertion points of the cordae tendiniae were considerably swollen. Under the endocardium were many small hemorrhages. Small collections of blood in the valves. In the endocardium were separate spots of inflammatory infiltration.

J. L. Casper[13] reports the following case:—

A bag of corn fell on a man, aet. 66. Fracture of right thigh, which was amputated. Complete transverse fracture of third dorsal vertebra. He died eight days after the injury. On right side of pericardium an ecchymosis size of a half crown and in left wall of heart itself running from the auricle to the ventricle an ecchymotic stain two inches long and a quarter of an inch wide. Here, therefore, there had been a true and most singular concussion of the heart.

These slight superficial lesions may become the seat of valvular changes giving rise to stenosis or insufficiency, the symptoms not becoming evident for several weeks or months after apparent recovery.

J. G., having never been ill, having had no previous accident, was thrown with considerable violence from his wagon, striking on the curbstone with his left side. Immediately after he had symptoms indicating irregular or imperfect action of his heart. About seven weeks later the heart, on examination, did not show the slightest indication of any valvular affection. After an interval not determined by the history signs of a cardiac affection developed; there was an inability to run as well as before the accident, and inability to do as hard work without getting out of breath and having unusual acceleration of the heart's action. When these were first noticed was not learned though they had been present some time before he was seen in 1912, at which time there was well marked valvular disease, the aortic and mitral valves both being affected.

There was a slight injury to the heart by the accident; the earlier symptoms were of only moderate duration. Later endocarditis developed, but compensation was sufficient so that he could meet all the ordinary demands of life. The valvular lesions when first recognized in 1912 must have been in existence many months. It is not unreasonable to believe that the changes began immediately after the accident and progressed steadily to the stage when I first noticed the murmurs.

It is very unlikely that there was rupture of any of the valvular structures or of any of the cordae tendiniae. There was an endocarditis due to the injury of the heart on Dec. 24, 1908, and the changes in the valves were due to that.

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INTRASPINOUS USE OF SALVARSANIZED SERUM.

BY C. W. MCCLURE, M.D., IOWA CITY, IOWA.

[Clinical Laboratory of the Department of Internal Medicine, The State University of Iowa, Iowa City.]

WITH the administration of mercury, iodides, and salvarsan intravenously, most cases of cerebrospinal lues and of tabes dorsalis can be relieved of many of the clinical signs and symptoms, but the changes occurring in the cerebrospinal fluid are evidences of active syphilis of the central nervous system, and no treatment can be considered adequate which does not result in the permanent disappearance of these abnormalities.

For this reason Swift and Ellis have developed a method whereby salvarsan can be directly introduced into the cerebrospinal canal, and thus aid in the eradication of the spirochaetae from the central nervous system.

The technic is as follows: "One hour after the intravenous injection of salvarsan, 40 cc. of blood is withdrawn directly into bottle-shaped centrifuge tubes, allowed to coagulate, after which it is centrifugalized. The following day 12 cc. of serum is pipetted off and diluted with 18 cc. of normal saline. This 40% serum is then heated at 56 C. for one-half hour. After lumbar puncture, the cerebrospinal fluid is withdrawn until the pressure is reduced to 30 mm. cerebrospinal fluid pressure. The barrel of a 20 cc. Luer syringe (which has a capacity of about 30 cc.) is connected to the needle by means of a rubber tube about 40 cm. long. The tubing is then allowed to fill with cerebrospinal fluid so that no air will be injected. The serum is then poured into the syringe and allowed to flow slowly into the subarachnoid space by means of gravity. At times it is necessary to

insert the plunger of the syringe to inject the last 5 cc. of fluid. It is important that the larger part of the serum should be injected by gravity and if the rubber tubing is not more than 40 cm. long the pressure cannot be higher than 400 mm.

"Usually the serum flows in easily under even a lower pressure. By the gravity method the danger of suddenly increasing the intraspinous pressure to the danger point, such as might occur with rapid injection with a syringe, is avoided. Frequently there is a certain amount of pain in the legs, commencing a few hours after the injection. The pain is more often noticed in tabetics, than in patients with cerebrospinal syphilis. It can usually be controlled by means of phenacetin and codein. Occasionally morphin is required."

Swift and Ellis,[1 & 2], treated five cases of tabes dorsalis and one case of cerebrospinal lues with salvarsan intravenously and intraspinously with excellent results. In order to rule out the effect of salvarsan intravenously, two cases of tabes and one of cerebrospinal lues were given salvarsanized serum intraspinously without any other form of treatment. Marked improvement was obtained.

Myerson[3] obtained improvement clinically and in the biological characters of the spinal fluids in four of seven cases of paresis.

Hough[4] reported six cases of tabes and paresis in which improvement occurred symptomatically and in the character of the spinal fluids in all but one case of paresis.

McCaskey[5] noted symptomatic improvement in seven cases of luetic involvement of the central nervous system.

Cutting and Mack[6] treated six cases of paresis with intraspinous injections. The mental symptoms were improved in only one case, but improvement was noted in the fluids of five cases.

A significant report is that of Ayer's.[7] Eighteen cases were treated with salvarsan intravenously and with the salvarsanized serum intraspinously. These cases were mostly chosen because refractory to other forms of treatment. Of eight cases of tabes, four were improved in every respect. The four cases either unimproved or but slightly improved were either of twenty years' duration or suffering with advanced optic atrophy. Five cases of cerebrospinal lues also showed marked improvement clinically and in the findings in the fluids. The four cases of paresis showed little or no improvement symptomatically but all showed a diminution in the pleocytosis which, however, relapsed after cessation of treatment. These cases were observed over a period of not less than thirteen months.

Twelve cases of syphilitic disease of the central nervous system have received intraspinous treatment during the last year in the University Hospital. Of this number nine have been observed long enough to allow an opinion of the efficacy of the treatment to be formed.

These cases have received the usual routine treatment of salvarsan intravenously and mercurial inunctions with the addition of the intraspinous injections of salvarsanized serum.

CEREBROSPINAL LUES.

CASE 1. No. 1394. Mrs. A. S. Female, age 39, Admitted Feb. 26, 1914. No history of infection. Symptoms: dizziness, occipital headaches, urgency of urination. Speech slow. Somewhat melancholy. Some impairment of memory. Pupils unequal and react sluggishly to light and acommodation. Right grip weak. Legs strong but there is some ataxia and stiffness of gait. Right sided Babinski and rectus clonus.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Mar. 26	++	40	++	++++0.2 cc.		
Mar. 31	++				0.5 g.	
Apr. 2		40	+	++++0.2 cc.		14½ cc.
Apr. 7					0.5 g.	
Apr. 8		21	+	++++0.2 cc.		12 cc.
Apr. 14	++	23	+	0.5 cc.		14 cc.

Result of Treatment. April 17, headaches, dizziness, urinary symptoms lost. Speech and gait much improved.

CASE 2. No. 1312. Mr. S. Male, age 60. Admitted Feb. 3, 1914. No history of lues. Patient was in the University Hospital for a week in December, 1912, and January, 1913, at which times he received mercurial inunctions. Under this form of treatment there had been much improvement of subjective symptoms and to a less extent of the objective at the time of the last admission. No change had occurred in the Wassermann reaction in the fluid but it had become negative in the blood. The characters of the fluid had not changed.

Symptoms on Last Admission. Dizziness, Argyll-Robertson pupils, Rombergism, gait spastic and ataxic.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Feb. 4	0.	240	+++	++++0.1 cc.		
Feb. 6					0.5 g.	
Feb. 8		251	+++	++++0.1 cc.		10 cc.
Feb. 12	0.					
Feb. 14					0.5 g.	
Feb. 15		70	+++	++++0.1 cc.		10 cc.
Feb. 21	0.	51	+++	++++0.2 cc.		10 cc.

Result of Treatment. Dizziness lost. Gait markedly improved.

CASE 3. No. 1404. Mr. T. T. Male, age 37. Admitted March 30, 1914. Infection with lues fourteen years ago.

Symptoms. Headache, dizziness, retention of urine. Speech garrulous. Grip, right 55, left 70. Muscular power right leg, 60%. Back muscles markedly weak. Gait hemiplegic. Left testicle enlarged.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Mar. 31	++	43	+++	++++0.4 cc.		
Apr. 1					0.6 g.	
Apr. 8					0.6 g.	
Apr. 9	++	12	?	+0.5 cc.		14 cc.
Apr. 15					0.6 g.	
Apr. 16	++	9	+	0.		14 cc.
Apr. 23		20	+	0.		14 cc.
May. 2		40	+	0.		

Result of Treatment. May 3. Garrulous speech, headache, dizziness, lost. Urinary retention lost. Legs strong, ataxia lost, gait good and power regained in muscles of back. Grip, right 60, left 80. Testicle much reduced in size.

CASE 4. No. 1359. Mr. M. Male, age 43. Admitted March 6, 1914. No history of lues.

Symptoms. Headache, nervousness, dizziness and weakness. Slight hesitancy in speech with occasional incoherence. Argyll-Robertson pupils.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Mar. 6	0.	120	++	++++0.05 cc.		
Mar. 9					0.5 g.	
Mar. 11		105	+	++++0.05 cc.		14 cc.
Mar. 16	?	74	+	++++0.05 cc.	0.5 g.	
Mar. 18						14 cc.
Mar. 19	0.					
Mar. 27		40	+	++++0.05 cc.		

Result of Treatment. Loss of headache and of the hesitancy and incoherence in speech. Dizziness and weakness were less marked, but these symptoms may have been due in part to the presence of an aortic insufficiency.

The patient was again admitted July 18, 1914. His condition was the same as when he left the hospital in March. Two examinations of the cerebrospinal fluid gave cell counts of 76 per cubic millimeter and one plus reactions for abnormal proteid content. The Wassermann reaction was negative in the serum, but strongly positive in 0.1 c.c. of the two fluids.

TABES DORSALIS.

CASE 1. No. 1151. Mrs. L. K. Female, age 55. Admitted Oct. 30, 1913. No history of lues.

Symptoms. Gastric crises, ptosis of left eyelid, Argyll-Robertson pupils.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Oct. 30	0.					
Oct. 31		54	0.	0. 0.5 cc.	0.5 g.	
Nov. 7	0.					
Nov. 11		34	0.	0. 0.5 cc.	0.5 g.	10 cc.
Nov. 19	0.					
Dec. 11	0.	20	0.	0. 0.5 cc.		

Result of Treatment. December 23. Free from gastric crises.

CASE 2. No. 1516. Mr. C. H. Male, age 51. Admitted June 30, 1914. No history of lues. Patient was in the University Hospital for three weeks in December, 1913. At this time the symptoms were dizziness, difficulty in walking, and lightning pains in the legs. The Wassermann was strongly positive in the cerebrospinal fluid; there was a pleocytosis but no increase in the proteid content. Under treatment of mercurial inunctions and salvarsan there occurred improvement in the subjective symptoms and to a less extent in the objective.

Symptoms on Last Admission. Dizziness, generalized lightning pains and gastric crises, difficulty in walking, ataxic gait, palpitation and dyspnea on exertion, Argyll-Robertson pupils, absence of knee-jerks, Rombergism, fundi normal.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
June 5	0.	60	0.	0. 0.5 cc.		
June 9					0.5 g.	
June 10	0.	54	0.	0. 0.5 cc.		14 cc.
June 16					0.05 g.	
June 17	0.	58	+	+ 0.5 cc.		12 cc.
June 22					0.05 g.	
June 23	0.	67	+	0. 0.5 cc.		12 cc.
June 25	0.					
July 13		30	0.	0.0.5 cc.		

Result of Treatment. Dizziness, lightning pains and gastric crises lost. No more palpitation or dyspnea. Less difficulty in walking.

TABO-PARESIS.

CASE 1. No. 1432. Mr. H. H. Male, age 39. Admitted April 15, 1914. No history of a primary lesion, but secondary manifestations occurred one year ago.

Symptoms. Lightning pains in legs, urgency of urination, dysarthria, Argyll-Robertson pupils, marked ataxia of gait, Romberg.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Apr. 16		7	+	++++0.05 cc.		
Apr. 18	++				0.6 g.	
Apr. 19		25	+	++++0.05 cc.		15 cc.
Apr. 24	++				0.6 g.	
Apr. 25		12	+	++++0.05 cc.		15 cc.
Apr. 30	+++				0.6 g.	
May 1		7	+	++++0.05 cc.		15 cc.
May 9	++	19	+	++++0.05 cc.		

Result of Treatment. Speech improved. Lightning pain disappeared, but the ataxia, Rombergism, and incontinence of urine remained unchanged.

PARESIS.

CASE 1. No. 1185. Mr. R. Male, age 53. Admitted Nov. 19, 1913. No history of lues.

Symptoms. Headache, dizziness, insomnia, melancholic and irritable, at times disoriented, marked ataxia of legs, but gait not ataxic, Rombergism, Gordon and Chaddock on the right, fundi negative.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Nov. 19	0.	294	+	0. 0.5 cc.	0.6 g.	
Nov. 22		127	+	0. 0.5 cc.		12 cc.
Nov. 25					0.5 g.	
Dec. 3					0.5 g.	
Dec. 5	0.	260	+	0. 0.5 cc.		10 cc.

Result of Treatment. No improvement. The patient grew progressively worse.

CASE 2. No. 1071. Mr. S. Male, age 49. Admitted Sept. 2, 1913. Luetic infection twenty-five years ago.

Symptoms. Headache, dizziness, speech slow and indistinct, comprehension slow, habits untidy, at times irritable, Argyll-Robertson pupils, slight ataxia of legs and arms, double Babinski.

Date.	Wa. R. Blood.	Cell Count per Cmm.	Proteid Content.	Wa. R. Fluid.	"606."	Salvar. Serum.
Sept. 3		20	+			
Sept. 4	0.				0.5 g.	
Sept. 10					0.5 g.	
Sept. 19	0.				0.5 g.	
Sept. 23		18	0.	0. 0.5 cc.		10 cc.
Oct. 11	0.	22	++	0. 0.5 cc.		10 cc.
Oct. 22				++0.5 cc.		
Nov. 14	0.	28	+	0. 0.5 cc.		10 cc.
Dec. 13	0.	5	0.	0. 0.5 cc.		
Jan. 9	0.	5	0.	0. 0.5 cc.		

Result of Treatment. Headache and dizziness lost. Marked improvement in speech and mentality. Ataxia lost and gait good. Babinski lost on the right.

In four cases of cerebrospinal lues under treatment with intravenous injections of salvarsan, mercurial inunctions, and the intraspinous use of salvarsanized serum, there has been observed improvement in the subjective and objective symptoms. With this improvement there has occurred a diminution in the cell count, the proteid content, and the strength of the Wassermann reaction in the cerebrospinal fluid. The Wassermann in the blood remained unaffected up to the time of leaving the hospital.

Two cases of tabes were relieved of subjective symptoms and the number of cells in the cerebrospinal fluid reduced.

A case of tabo-paresis showed no change in the laboratory findings and only slight improvement symptomatically.

One case of paresis showed marked improvement in the symptoms and the laboratory findings. The Wassermann reaction became negative in the cerebrospinal fluid.

One case of paresis showed no improvement in either the symptoms or the laboratory findings but grew progressively worse.

The results in cerebrospinal lues and tabes in the small series of cases studied in this hospital and those collected from the literature are encouraging not only as regards cessation of symptoms but also in the laboratory findings in the cerebrospinal fluids.

The results in paresis are either discouraging or problematical. The most marked improvement has occurred in the laboratory findings and in these there has been a relapse in those cases followed for several months.[7] The improvement in mentality so far recorded may be but the result of remissions to which the disease is prone, even in the absence of treatment. But the fact that improvement may occur, even if only apparent, warrants the use of the intraspinous treatment in a disease otherwise hopeless.

In this hospital the intraspinous treatment is a routine measure in those cases of syphilis of the central nervous system which show evidences of meningeal involvement.

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A REPORT OF THE CASES OF LUNG ABSCESS AT THE MASSACHUSETTS GENERAL HOSPITAL CLINIC.*

BY CHARLES L. SCUDDER, M.D., BOSTON,

Surgeon to the Massachusetts General Hospital, Boston; Associate in Surgery, Harvard University Medical School.

IN the year 1906 Dr. F. T. Lord published a paper upon Abscess of the Lung, based upon a study of the cases operated upon at the Massachusetts General Hospital. He reported six cases of an acute type and five cases of a chronic type,—a total of eleven cases, with four deaths, two cases relieved with a sinus, one case relieved without a sinus, and four cases cured four years, five years, eight years, and twelve years following operation.

In view of the very great interest in the surgery of the lung today it occurred to me that a report from this same clinic of the cases of abscess of the lung operated upon since 1906 might be of some interest and value. I, therefore, in this paper report the details of sixteen cases of lung abscess treated by operation.

All of these cases of lung abscess have been observed by the medical service at the hospital, as well as by the roentgenological and bacteriological departments.

I suppose that very few cases of diseases of the lung have been more thoroughly and painstakingly studied in this clinic than those recorded in the present series. There was a total of sixteen cases. Fourteen of these abscesses were in men, two were in women. The ages extended from seventeen years to fifty-four years. Fourteen of the operations were done in two stages, two of the operations were done in one stage. Ether was employed in all cases as the anesthetic. There were five deaths in the series. Three of the cases thus far followed were unimproved, and eight have been at least relieved, and some permanently cured.

The variety of etiological factors which may be present in abscess of the lung is well illustrated in this series of cases. The largest number was caused by the influenza bacillus associated with a broncho-pneumonia. There were several embolic cases, several cases of subdiaphragmatic origin, and one case of actinomycosis.

The following facts seem to me apparent from a study of this group:—

1. The bronchiectatic process should be attacked by the surgeon while it is limited to one lobe of a lung. A very decided attempt should be made to determine as early as possible the diagnosis of bronchiectasis. Surgery may be able then by the excision of a single lobe to cure such a condition.

* Read at the annual meeting of the American Surgical Association, New York. April, 1914.

2. There was one case of actinomycosis in which the diagnosis was made by Dr. William H. Smith in conjunction with Dr. James H. Wright, after painstaking study. This case of actinomycosis was cured by surgical operation. It suggests that actinomycosis of the lung must be recognized in its initial stage and vigorously attacked by surgery, for only in this way is there a great likelihood of curing this very fatal disease.

3. Attention is attracted to lung abscess following tonsillectomy. There have been several cases in my experience. There is one case in this series which followed operation upon the nasal septum. The inhalation of foreign material may have been the starting point in this case. The employment of intratracheal anesthesia with gauze packing of the pharynx may be wise in these cases.

4. From certain cases in this series it is suggested that the surgeon should be alert to the occurrence of lung abscess associated with embolism following ordinary surgical operations. A patient suddenly suffering severe pain in the chest following surgical operation associated with a rise in temperature and pulmonary signs should be very carefully studied lest such signs may mean the beginning of pulmonary abscess. Early operative interference upon the lung in such cases may not only preclude the possibility of the extension of a pulmonary lesion, but may save the life of the individual.

5. An increasing number of intra-abdominal infections are associated directly with an infection through the diaphragm of the diaphragmatic pleura, and then of the lung with pulmonary abscess. These cases of sub-diaphragmatic origin must be attacked early to prevent subsequent damage intrathoracically.

6. The x-ray is of great value in the diagnosis of lung abscess. The thorough roentgenological examination necessitates fluoroscopic observations, stereoscopic plates, and both anterior and posterior views. If there is reason to suspect fluid in the chest, the examination should be made in the upright, as well as in the horizontal position. The exact position of the heart, the position and excursion of the diaphragm, and the clearness of the costo-diaphragmatic angle, are facts which help in the interpretation of the x-ray plates.

The recognition of the presence or absence of tuberculosis, of a diffuse or bilateral bronchiectasis, of syphilis of the lung, will assist in the interpretation of the plates. Centrally seated abscesses, almost impossible of determination by ordinary physical signs, may be accurately localized by the x-ray.

The x-ray is of assistance in the interpretation of physical signs in cases of suspected lung abscess and bronchiectasis, and may be of assistance in the exact localization of the abscess.

7. Finally, I believe that this total series of 27 cases demonstrates the efficacy of surgical measures in the treatment of abscess of the lung. There were nine deaths, eighteen recoveries, and eleven cases were practically well without cough or sputum.

CASES OF ABSCESS OF THE LUNG SINCE 1906.

REPORTED BY DR. C. L. SCUDDER FROM THE MASSACHUSETTS GENERAL HOSPITAL CLINIC.

No.	Cause.	Duration.	Seat.	Operation.	Surgeon.	Immediate Result.	Remote Result.
1	Pneumo.	8 days	Rt. base	1 stage	C. L. S.	D	Abscesses of liver and lungs.
2	Post-op.	3 wks.	Rt. base	2 stages	W. W.	R	Cured—six mos.
3	Pleurisy	1 mo.	Lt. base	2 stages	S. R.	R	Left hospital in good condition.
4	Duod. ulcer	1 mo.	Rt. base	1 stage	C. L. S.	R	Local empyema (through bronchus)
5	Actinomycosis	7 wks.	Lt. base	2 stages	C. L. S.	R	Left hospital in good condition.
6	Pneumo.	2 mos.	Lt. base	2 stages	F. C.	D	No relief at any time.
					C. C. S.		
7	Pneumo.	2 mos.	Rt. base	2 stages	C. L. S.	D	Post-op., empyema. Septicemia.
8	Pneumo.	4 mos.	Rt. base and liver	3 optns.	F. C. F. B. H.	D	Abscesses lung, liver and brain.
9	Unknown	6 mos.	Lt. base	2 stages	C. A. P.	R	Unimproved.
10	Pleurisy	9 mos.	Rt. base	3 optns.	C. L. S.	D	Abscess lung. Mucous colitis.
11	Pneumo.	11 mos.	Lt. base	2 stages	W. W.	R	Cured—one year.
12	Unknown	1 yr.	Rt. apex	2 stages	C. L. S.	R	Left hospital in good condition.
13	Pneumo.	1 yr.	Lt. base	2 stages	S. R.	R	Cured—one year.
14	Pleurisy	3 yrs.	Lt. base	2 stages	C. L. S.	R	Left hospital slightly relieved.
15	Duod. ulcer	4 yrs.	Rt. base	2 stages	C. L. S.	R	Cured—six months.
16	Pneumo.	6 yrs.	Lt. base	2 stages	C. L. S.	R	Unimproved.

OBSERVATIONS ON THE BEHAVIOR OF NEOSALVARSAN.

BY W. J. MCGURN, M.D., BOSTON.

BEFORE entering into a general discussion of this subject, it is well to recall that ample proof has been furnished that severe illness and death sometimes follow close upon the intravenous administration of salvarsan and its derivative neosalvarsan. While it appears that autopsy offers conclusive evidence that death in many cases was due to some external agent introduced at the time of injection, it remains to be proven

whether either of these agents, unmodified and in perfect solution, may result in a fatality.

Anyone with even a limited experience with neosalvarsan is, of course, familiar with Ehrlich's warning that solutions of neosalvarsan should not be warmed, and to be safe the temperature must be kept below 70° F. Also, that immediate injection after its preparation is imperative. To the average mind the question promptly arises: Why then is it not dangerous to subject the solution to a temperature of 98.6° F. by introducing it into the blood stream? The answer most often given is a speculative one based upon theory rather than observation. The truth of the matter, however, is that neosalvarsan is unaffected by a very wide range of temperature when the drug, or its solutions, is not in contiguity with free or loosely combined oxygen.

This deduction was obtained after observing the behavior of two hundred specimens of the drug, subjected to various experimental tests, the results of which seem to be conclusive.

The chemical change taking place in solutions of neosalvarsan is due to the process of oxidization, the rapidity of which depends upon the area of surface exposure; and to the temperature of the air to which it is exposed rather than upon the temperature of the solution itself. Solutions of neosalvarsan prepared from ampuls that have been subjected for several hours to a temperature of 100° F. do not differ from those not so treated.

Oxidization always begins at the top of the solution where it is in contact with air. The first evidence of this process is seen in a whitish opaque zone overlying the transparent solution, which is not readily detected until the zone of opacity assumes the depth of one-eighth to one-fourth inch, unless the surface of the solution is elevated to the visual level and inspection made by transmitted light. Even then slight agitation of the mixture will obscure the presence of oxidization products, so that we are dealing at once with a mixture of unknown toxicity instead of a solution of neosalvarsan.

Specimen tubes of fresh prepared solution placed on ice oxidize more slowly than do similar tubes placed in hot water, but the difference in time of decomposition is not so great as might with reason be expected; while reverse results are obtained when the exposed surface of the iced solution is subjected to a draught of warm air, and that of the warm solution treated with a current of air chilled to 50° F. This experiment tends to indicate that a low room temperature is of even greater importance to the safe handling of neosalvarsan than is a low temperature of the solution itself.

When solutions of neosalvarsan are prepared in shallow receptacles of great surface area, oxidization progresses rapidly and the process is usually well advanced in three to five minutes; while containers of small surface exposure permit of much slower deterioration of the content, decomposition being further retarded, *but not prevented,* by maintaining the room temperature at or below 65° F., also by keeping the solution closely covered.

Test tubes of small diameter, when filled with solution and tightly corked, usually show degenerative changes in about one hour, which change becomes complete in from one day to one week. An air bubble of pin-head size is capable and certain of bringing about a complete chemical change within a few days; while tubes sealed hermetically, after the complete expulsion of air, keep indefinitely even when subjected to a temperature of 200° F.

To insure a permanent solution, however, it is necessary to exclude not only direct sunlight, but diffused daylight as well. Specimens so prepared and exposed to sunlight do not give evidence of physical or chemical changes for a period of from three to ten weeks, and when subjected to diffused light only, they remain in solution a much longer time, usually for three or four months.

Comparative tests show that saline solution prepared with our metropolitan tap water boiled, cooled and filtered through a fine porcelain tube is not inferior to fresh distilled water for intravenous administration of neosalvarsan.

Solutions prepared by using 8 cc. of a 0.4% salt solution to each 0.1 gm. of neosalvarsan are equally safe and hold up much better than those diluted to a greater volume of the saline, while concentrated solutions offer even a higher degree of stability. Neosalvarsan when diluted further than advised by the Ehrlich laboratory is likely to become suddenly suspended and a faint opacity appear throughout the liquid.

There can be no doubt that neosalvarsan is prepared and sealed with very accurate precautionary measures, but the assumption would be too great to suppose that thousands of these ampuls could be dispensed from any laboratory and each present exact uniformity of conduct when subjected to various thermal, chemical and clinical observations.

While most ampuls of neosalvarsan are exactly similar in their behavior when exposed to air, it is also true that occasionally one is encountered which for an unknown cause appears higher in color, dissolves with some difficulty and oxidizes much more rapidly than others. Occasionally I have found an ampul where extensive oxidization of the neosalvarsan took place within ten minutes after being dissolved, while with other ampuls but slight evidence of deterioration could be detected at a period of two hours after the solution was prepared. In fact such a variation of conduct was observed by me where every environment remained the same throughout the day, so far as could be determined.

Oxidization of neosalvarsan when exposed is not hastened by the presence in the air of such chemical substances as alcohol, ether, chloro-

form, carbolic acid or illuminating gas, while exposure to an atmosphere where liquid oxygen has recently been used, will cause sudden and complete precipitation of the drug. Minute traces of mercuric bichloride or wood alcohol are rapid in their destructive action upon neosalvarsan, while one drop of hydrogen peroxide is capable of sending it down with a proverbial thud, ammonia presenting another form of incompatibility.

Careful examination by transmitted light would indicate that neosalvarsan when dissolved in 0.4% chemically pure sodium chlorid solution fulfills every requirement of a "*perfect chemical solution.*" This belief is disproven, however, by passing the mixture through a white porcelain filter capable of negotiating the complete ampul content to the time of three minutes. Solutions so tested invariably leave a residue, the presence of which is brought out very clearly by adding one or two drops of peroxide hydrogen, or by swabbing the exterior surface of the filter with liquid oxygen. The amount of the residue is increased by delaying filtration and by diluting beyond 8 cc. of NaCl solution to each 0.1 gram of neo. When clinically employed the porcelain filter is capable of preventing any insoluble or oxidized portion of the drug from entering the vein and is always a safeguard against an impure filtrate.

After a fairly extensive experience with neosalvarsan I am convinced that when accurately handled it is both safe and dependable; that in preparing and administering this agent a cool room with perfect illumination is of equal importance with strict asepsis; that the beginning of oxidization of neosalvarsan is simultaneous with its exposure to air; that "immediate injection" should be interpreted as forbidding a delay of more than ten minutes from the time of opening the ampul until the injection is completed, which time can easily be reduced by half; also, that the use of therapeutic agents containing ammonium carbonate or mercury should be withheld or suspended for a period of forty-eight hours preceding and for several days following the intravenous administration of either new or old salvarsan.

Clinical Department.

SYPHILITIC MULTIPLE SCLEROSIS DIAGNOSED CLINICALLY IN SPITE OF NEGATIVE LABORATORY TESTS.

BY TOM A. WILLIAMS, M.B., C.M., EDIN., WASHINGTON, D. C.,

Neurologist to Epiphany Dispensary, Corresponding Member, Paris Neurologic Society.

A WOMAN aged thirty-nine was sent to me from New York state because of what had been diagnosed by several neurologists as multiple sclerosis. Her physician wrote asking if I could suggest some treatment or perhaps modify the diagnosis.

The patient declared that she had been intensely nervous since the birth of her boy eight years ago; since two and one-half years this had consisted of palpitation and a feeling of dread, great unsteadiness of the hands, voice and gait. In addition there was marked incontinence of urine and extreme obstipation with occasional incontinence. She was dizzy when tired, and the eyes were blurred.

Examination showed great exaggeration of the tendon reflexes, but no corresponding diminution of the cutaneous reflexes, and the great toes did not extend upon stroking the sole of the foot nor by other stimuli used to provoke that reflex. But that there was some interference with the pyramidal system was shown by absence of reflex flexion of the toes, all of them remaining immobile to the stimuli of reflectivity.

The absence of the sign of Babinski in a patient whose illness was of such gravity and duration made me suspect that insular sclerosis might not be present after all; and on proceeding to the examination of the eyes, my doubts received further support; for no nystagmus occurred even during rapid intentional movements; and the optic papilla showed no atrophy, although slightly pale. The absence of three signs of such importance compelled me to contradict the previous diagnosis, in spite of the presence of intention tremor, scanning speech, impaired diadocokinesis, a slight *moria*, such as often occurs in insular sclerosis, and a diminution of vibration sense in the legs.

But it is pretty well known to neurologists that the symptoms of insular sclerosis may be simulated, even to a greater degree than was shown by this patient, when there is a diffuse chronic inflammation of the nervous system produced by the treponema pallidum. This I suspected to be the condition of this patient.

Accordingly lumbar puncture was done on February 13, when 30 c.c. of fluid very rapidly came, and Dr. Nichols reported that there were 7 lymphocytes per c.m. This slight lymphocytosis still left us in doubt, for an increase in cells has been reported in cases of insular sclerosis.

However, I put the case to the patient, who decided to permit the experiment. So I injected a full dose of salvarsan into a vein on February 22. This rendered her almost helpless for about two days. Then she began to handle herself much better, and on the 28th she also felt much better and the motility still further improved. The reflexes and sensibility were as before, but the intention tremor had greatly diminished.

So on March 7 the spinal fluid was again examined, and a luetin test was begun by Dr. C. A. Simpson. The cells had diminished to 5 c.m. This puncture caused great pain, headache and nausea. After this cleared up, salvarsan was again given on March 15. Within 24 hours her legs gave way twice, but a great improvement again followed in walk and speech. The intention tremor disappeared, and her sleep became restful. The Wassermann reaction remained negative as before; but a papule rapidly formed where luetin had been injected, and when I saw her five days after the salvarsan, a broken pustule was present which Dr. Simpson pronounced a luetin reaction.

The following letter was sent to her doctor, who expressed his pleasure thereat in stating that the case had baffled several neurologists:—

"Mrs. B— is returning, after receiving salvarsan twice and appearing much improved. I think we may say the diagnosis is positive now, for the reaction to luetin, which Dr. C. A. Simpson declares to be pathognomonic, declared itself after the second injection of salvarsan, although it had been quiescent more than a week before that. This, in connection with the puerperal history, the lymphocytosis of the spinal fluid and the absence of some of the most characteristic signs which might be expected in true insular sclerosis, decides me. I recommend that you continue treatment by salvarsan and mercury for some months; although I do not believe that full restoration of function will occur now, as there must be considerable destruction of nervous tissue. I have not named the diagnosis to the patient. Please accept my thanks for sending me a problem of such interest and for the pleasure of having been able to afford some benefit."

COMMENTARY.

The low lymphocyte count in the presence of such severe symptoms and the relative poverty of radicular signs indicate that the pathological process causing the symptoms is within the central nervous system in the main, and not merely an involvement of the roots by an extension from the meninges into their coverings of syphilitic lepto-meningitis, as is the case in tabes dorsalis. There are, in all probability, foci of ill-nourished, if not necrotic tissue, scattered throughout the central nervous system, perhaps as a result of endarterial proliferation, which may have led in some cases to obliteration. In proportion as this is incomplete and the tissue elements have not perished, there will be restoration of function, as tissue activity is resumed upon the removal of exudate from arterial wall or connective tissue, by the destruction of its cause, the treponema pallidum, by salvarsan or mercury.

In the presence of lesions of this character the signs may lack all systematization, as in this case.

In insular sclerosis, it is rare that the midbrain or the pyramidal tract escapes when the process is at all extensive. The absence of nystagmus and of extensor response of the toes immediately made me suspicious of this diagnosis. The experimental therapeutics confirmed my doubts; but unless the luetin reaction be regarded as pathognomonic, only an examination post mortem can give absolute proof; and in some cases even this has failed to distinguish between disseminated sclerosis of the usual type and that sometimes believed to occur as the result of syphilis. It must not be forgotten that post-mortem appearances are after all merely the results of the reaction of the body to insult, and that these results both resemble one another and vary so much that few of them are pathognomonic for any particular invasion. For instance, even plasma cells, so characteristic in paresis, merely denote chronicity, and may occur under many conditions quite irrespective of syphilis.

Again, during life the reactions of the body to the particular noxa are by no means uniform; otherwise we should not find the Wassermann reaction absent in nearly 40% of tabetics, and we should not find it present as a reaction to the organism of leprosy.

In conclusion, it cannot be too often insisted upon that the absence of the reactions which are detected by the usual laboratory tests for syphilis, is by no means conclusive of the absence of that disease: the failure to find them merely indicates that, at that particular moment, the patient is not reacting strongly enough in that particular way. The results of previous reactions, as manifested by present clinical signs, furnishes a basis for a diagnosis in every way as potent, and no more lacking in that objectivity which it is the fashion to claim preëminently for certain methods conducted in the clinical laboratory. A moment's reflection shows the fallaciousness of this claim; indeed, a non-reacting pupil, an absent knee-jerk, a positive great toe sign, are no less objective than blood cell count and diazo reaction, or an Abderhalden test; furthermore, these latter are much richer in liability to false interpretations, as well as errors in observation than are clinical signs in the hands of an experienced neurologist.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

THIRTY-NINTH ANNUAL MEETING, HELD AT BOSTON, MAY 19, 20 AND 21, 1914.

The President, DR. J. WHITRIDGE WILLIAMS, of Baltimore, in the chair.

(*Continued from page 495.*)

ULTIMATE RESULTS FROM SURGICAL INTERVENTION IN SIMPLE CASES OF CHOLELITHIASIS AND CASES IN WHICH GALL-STONES WERE FOUND COINCIDENT WITH SOME OTHER OPERATION.

DR. JOHN G. CLARK, of Philadelphia, stated that in his review of 160 cases of cholelithiasis he emphasized the fact that modern surgery had entirely recast the clinical history of cases of cholelithiasis, and that in the newer interpretation symptoms which were formerly considered as essential for the establishment of a diagnosis of cholelithiasis were now looked upon as terminal rather than initial indications of biliary defects.

In one group he had included cases in which there was an operation for cholelithiasis without any associated gynecological conditions. In the second group were found all of the cases in which the gall-stones were discovered in association with gynecological or other abdominal operations. In only 14 per cent. of his series of 160 cases had he

failed to secure accurate notes as to the outcome. In this list, no case had been included which had been operated upon under nine months. It was to the ultimate recovery that he had particularly directed his attention in this study of cases.

In all cases where here was nausea after 24 hours, he attached a saline reservoir to the drainage tube and under one foot of hydraulic pressure permitted the fluid to drop slowly into the gall-bladder. Great care was observed to avoid the slightest excess of pressure which might induce a rupture about the point of insertion of the tube in the gall-bladder. The drainage in this series had usually been maintained for ten days. This rule was an arbitrary one and in some cases the length of the drainage period might be extended. Within the last two years he had turned toward cholecystectomy in a greater proportion of cases, for experience had shown that if the wall of the gall-bladder was thick and indurated, or if it was dilated and very thin, or if, on inspection of the interior of the organ, the mucosa was eroded or showed a strawberry mottling, he performed cholecystectomy.

Occasionally he had closed the gall-bladder without drainage after the removal of uncomplicated gall-stones, but he preferred to use a simple drain for fear of the rupture of the gall-bladder and escape of bile into the peritoneal cavity was thus avoided.

From this series of cases he concluded that (1) simple drainage was sufficient in all cases of cholelithiasis where there was no symptom attributable to their presence. (2) When the gall-bladder was thickened, greatly dilated, or was the seat of the so-called strawberry change as described by Moynihan cholecystectomy was preferable.

So-called gastralgia, indigestion and dyspepsia he would place in heavy type and let it stand out so boldly that it would serve as a target to be immediately demolished.

In gynecological cases with coincident symptoms in the upper abdomen, the gall-bladder was by far more frequently the seat of disease than any other organ. In a vastly larger series of gynecological cases, gastric or duodenal ulcers, or cancer of the stomach, has been so infrequently found as to be almost negligible.

In estimating the immediate and remote results of these combined operations he had arranged his cases under three separate headings: First, simple gall-bladder cases, in which the surgical treatment was directed to the relief of cholelithiasis; second, the cases in which some pelvic operation was performed and gall-stones, not producing symptoms, were discovered, and, third, gynecological cases in which there were unmistakable symptoms of associated gall-bladder disturbance.

So far as immediate mortality was concerned, the first group consisting of 51 cases was attended by 6.1 per cent. immediate mortality, the second by 4.3 per cent., and in the third there was no fatality.

Of six fatalities in his series of cases, four of the cases died from destructive results of advanced cholelithiasis. In only two could death be attributed to any defect in operative technic. In one there was a leakage with the formation of a subphrenic abscess; in the other a peritonitis. These two deaths might have been avoidable. In none of the combined operations where there were no symptoms attributable to gall-stones was there a fatality.

DISCUSSION.

DR. REUBEN PETERSON, of Ann Arbor, found in about one thousand abdominal sections that there were gall-stones present in about 12 to 14 per cent. This included his own private cases as well as the University Hospital cases. He had adopted the one operation of simply removing the gall-stones and draining. He had not removed the gall-bladder in any case. He had found quite a percentage of cases where he did not think it was advisable to perform any operation on the gall-bladder. He had found an unusually large proportion of cases of cancer that had gall-stones. In the pus cases he had refrained from operating on the gall-bladder.

DR. PHILANDER A. HARRIS, of Paterson, N. J., had not often removed gall-stones from patients when operating upon them for gynecological troubles. He did not think he had removed the gall-stones in more than half a dozen cases. He did not believe he had found gallstones in more than four or five per cent. of the cases he had palpated through the abdominal incision, so that his experience did not correspond with that of Dr. Peterson. He had removed the gall-bladder in at least 70 per cent. of the cases on which he had operated, something less than 200. Removal of the gall-bladder was good practice.

THE NEW EFFICIENCY SYSTEMS AND THEIR BEARING ON GYNECOLOGICAL DIAGNOSIS.

DR. ROBERT L. DICKINSON, of Brooklyn, said that many of the methods of Taylor's "Scientific Management" of factories were adaptable to office, dispensary and hospital group diagnosis.

He gave an outline suggesting how responsibilities might be recast and grouped by function; how all processes might be standardized, then reduced to writing, instruction carried on, and then constant inspection to check up every one's results, while studies of time and waste motion in the operating room and ward were undertaken. Attention was drawn to the need of systematic study of fatigue among nurses, as had been done in other occupations. Reference was made to cöoperative methods, as instanced in the Associated Out-Patient Clinics of New York; of the Hospital Efficiency Committee of the Philadelphia County Medical Society, representing 55 hospitals; of the great new Mayo building just opened, and in associations of groups in cities.

Some examples of printed forms were submitted, such as a full preliminary history to be made out by the patient herself, and also printed directions to gynecological and pregnant patients.

HOSPITAL EFFICIENCY WITH PARTICULAR REFERENCE TO PRODUCT RATHER THAN EXPENDITURE.

DR. E. A. CODMAN, of Boston, stated that at present trustees of hospitals gave attention to the efficiency of their institutions in expenditures, but they had made little or no effort to find whether the treatment of the patients which was given by the medical and surgical staffs was good or bad. It had been taken for granted that the public preferred to be treated by a physician or surgeon who had a great reputation, even if he was hurried or careless, than by an individual of lesser reputation who could afford the time and pains necessary to obtain a good result in the treatment of disease which afflicted the patient. Hospitals in which promotion was made by a seniority system could not

help tending to the inevitable practice of allowing the more capable surgeons to do the easier and more brilliant cases, while the more tedious and difficult and grave cases might be referred to the younger men whose private reputations made little demand upon their time. There seemed to be some ground for the contention that it would be better to have a young surgeon do a large number of easy operations so that when he was older his experience might benefit the more difficult cases which fortunately were much fewer in number.

Dr. Codman pointed out the value of the "End Result System" and said it tended to bring this change about.

A CRITICAL REVIEW OF FIVE HUNDRED PUBLISHED AND UNPUBLISHED CASES OF ABDOMINAL CESAREAN SECTION FOR ECLAMPSIA.

DR. REUBEN PETERSON, Ann Arbor, read a paper on this subject in which he presented the following summary and conclusions:

1. Since the 500 cases of abdominal Cesarean represent the work of 259 operators they are a very fair index to the present status of the operation as a method of treating antepartum eclampsia.

2. Since the results of operative obstetrics, especially abdominal section, are far better at the present time than formerly, the value of the operation as a method of treatment of eclampsia can only be judged by grouping the cases chronologically.

3. Between 1903 and 1913 there were 283 cases of eclampsia treated by our abdominal Cesarean section with 73 deaths or a maternal mortality of 25.79 per cent. Up to 1908 there were 198 cases with 95 deaths or a mortality of 47.97 per cent. Hence the maternal mortality in the five year period has been reduced nearly one-half.

4. Hence the old figures of a 40 or 50% maternal mortality from abdominal Cesarean section for eclampsia are incorrect and should no longer be quoted.

5. The mortality percentage quoted above (25.79) can be considerably lowered by care in technic and by not making use of the suprapubic route when there is great probability that the woman has been infected from below.

6. Nearly one-fifth of the entire series, 91 operations, were performed by thirteen men having five or more cases to their credit, with 17 deaths, or a maternal mortality of 18.68%.

7. Deducting 15 cases where the proportion of moribund and septic patients was very high, the remaining 76 cases with 10 deaths give a maternal mortality of 13.15%.

8. Although an eclamptic may die after a single or survive after many convulsions, the latter must be utilized as an indication of the degree of eclamptic poisoning until we have a better method of estimating the patient's condition.

9. Emptying of the uterus either spontaneously or by artificial means, while it puts a stop to the further elaboration of toxins from the fetus, the placenta, or both, may not be sufficient to prevent further convulsions or in certain cases death of the mother from intoxication.

10. In the present series convulsions were caused after abdominal Cesarean section in 251 out of 457 cases, or in 54.92%. These statistics agree with those made up from those obtained from thousands of cases of eclampsia showing that convulsions cease after emptying of the uterus, either spontaneously or artificially, in from 52 to 62% of the cases.

11. Even when the convulsions cease after delivery a certain proportion of the patients die. In 146 cases where the convulsions ceased after abdominal Cesarean section during the five-year period (1908-1913) there were 41 deaths, or a maternal mortality of 19.8%.

12. While the above percentage of patients died after emptying the uterus by abdominal Cesarean section after cessation of the convulsions the mortality is much less than where the convulsions continue, since in 130 of such cases there were 41 deaths, or a maternal mortality of 31.53%.

13. The operative treatment of eclampsia has never been given a fair trial. To do this the uterus should be emptied quickly, as soon as possible after the onset of the first convulsion, not emptied after all kinds of medicinal treatment have been tried and failed.

14. In the present series there were 25 deaths after 124 operations performed after one to five convulsions, or a maternal mortality of 20.32%.

15. The best results in the operative treatment of eclampsia are bound to follow immediate emptying of the uterus in cases where the woman has not been infected by frequent vaginal examinations or attempts at delivery from below. This is shown by the following:—

16. In 60 of the 124 cases where the operations were performed after from one to five convulsions, where no or only one or two vaginal examinations had been made and where no attempts were made to deliver from below, there were only 9 deaths, or a maternal mortality of 15%.

17. The increase in mortality due to delay is shown by a mortality of 30.33% where the operations were performed after the sixth convulsion. This is 10% higher than after quick delivery and 5% higher than the total mortality resulting during the same period (1908-1913).

18. In 60 cases where the convulsions ceased after operations performed after from one to five convulsions there were 8 deaths, or a maternal mortality of 13.33%. The mortality is twice as high (26.92%) after operations performed under the same conditions except that the convulsions continued.

19. When the abdominal Cesarean sections were performed after more than five convulsions there was a resulting mortality of 26.31%, where there was a cessation of the convulsions, and 36.36% where they continued.

20. The average number of convulsions in 386 cases of eclampsia in the abdominal Cesarean series was 9 where the cases were not grouped. The average was 10 up to 1908 and 8 from 1908-1913.

21. Twins occurred 31 times in 500 cases of abdominal Cesarean section for eclampsia, or in 4.02% of the cases. This is over three times as frequent as are twins in normal cases.

22. Excluding premature children and counting as living all children who survived one hour after delivery there were 9 deaths from 1908 to 1913 where 248 children were delivered by abdominal Cesarean section, or a fetal mortality of 3.62%. Under the same conditions fetal mortality was 10.69%, if children dying the first three days after delivery were counted among the deaths. Even estimating the fetal mortality by this method it is much better than by any other method of treating eclampsia.

23. The fetus as well as the mother is affected by eclamptic poison. The greater the number of the eclamptic convulsions before delivery the greater the fetal mortality. Hence for the sake of the fetus the uterus should be emptied as soon as possible after the first convulsion. If other factors in the case call for abdominal Cesarean section the chances of the fetus will be much better than if another method of delivery be employed.

24. In 474 cases of eclampsia in the present series, 83.75% were primiparae and 16.17% multiparae. The relatively larger proportion of primiparae was due to the fact that primiparous conditions, such as undilated and rigid cervix and rigidity of the soft parts more often called for the abdominal operation than for other methods of delivery.

25. The maternal mortality is higher after abdominal Cesarean section in multiparous women than in the case with primiparous eclamptics. In the present series in 225 primiparae the maternal mortality was 24.44 %, while in 48 multiparae the mortality was 27.08%.

26. The fetal as well as the maternal mortality is higher in multiparae after abdominal Cesarean section. This is probably due to the greater degree of intoxication among the multiparae, since in both primiparae and multiparae the children, because of the nature of the operation employed, escape the traumatisms of labor. The greater intoxication among the multiparae is probably due to their being on the average older than the primiparae, the average of the former in 77 cases being 32.6 years, while the average age of the latter in 397 cases was 24.6 years.

27. The maternal mortality in eclampsia after abdominal Cesarean section steadily increases with the age of the patients, it being 23.63% between the ages of 16 and 20, and 31.11% between the ages of 31 and 35.

28. The number of eclamptic cases in the present series steadily increased from the fifth month of gestation up to full term, also the farther advanced the pregnancy the lower the maternal mortality.

29. Unless the aseptic technic employed in attempts to deliver from below be known, abdominal Cesarean section is contraindicated, so great are the dangers of fatal peritonitis when the patient is infected.

30. The high death-rate of abdominal Cesarean section after operative procedures is shown by the fact that there were 10 deaths in 29 such cases, or a maternal mortality of 34.48%. This 9% increase in mortality over the total mortality (25.79%) during the same period was undoubtedly due to sepsis, shock and delay in emptying the uterus.

31. The mortality is distinctly higher after abdominal Cesarean section in eclampsia if vaginal examinations have been made prior to the operations. The danger increases directly with the number of examinations made and the lack of asepsis employed.

32. Any obstetric condition which makes delivery by the natural passages prolonged and difficult may be an indication for abdominal Cesarean section in eclampsia. If delivery be decided upon, the uterus should be emptied by the method which will perform the work the quickest and with the least trauma and shock to mother and child. However, it must be borne in mind that there is more danger of sepsis when the peritoneal cavity is opened.

33. With the present state of our knowledge of this operation for eclampsia it cannot be denied that older and more tried methods of emptying the uterus in eclampsia give better results in eclamptics with normal pelves and soft parts, hence should not be lightly discarded in favor of the more brilliant and more easily performed abdominal operation.

(To be continued.)

Book Reviews.

Surgical Experiences in South Africa. 1899-1900. Being Mainly a Clinical Study of the Nature and Effects of Injuries Produced by Bullets of Small Calibre. By GEORGE HENRY MAKINS, C.B., F.R.C.S., senior surgeon to St. Thomas's Hospital, London; vice-president of the Royal College of Surgeons of England; late joint lecturer on surgery in the medical school of St. Thomas's Hospital; member of the court of examiners of the Royal College of Surgeons of England; and one of the consulting surgeons to the South African Field Force. Second edition. London: Henry Frowde, Oxford University Press; Hodder and Stoughton, Warwick Square, E. C. 1913.

The first edition of this book appeared in 1901. It was dedicated to Surgeon-General W. D. Wilson and members of the Royal Army Medical Corps employed in South Africa, one of whom was G. H. Makins himself. The author had originally intended to send a series of articles to the *British Medical Journal*, but later decided to enlarge them considerably and publish them together. Illustrative cases have been introduced in support of various statements made in the text, and only those have been chosen from his notes which were under his own observation for a considerable time. Mr. Makins has studied the results of small calibre gunshot wounds and does not consider other surgical problems connected with war. Makins does not seem to believe that very many cases of gunshot wounds of the abdomen have recovered without operation. He admits that it does take place, but feels that the number of such cases has been exaggerated. In the non-operative treatment he insists upon absolute starvation, and as little disturbance of the patient as possible; strychnine for shock; feeding is commenced at the end of twenty-four to thirty-six hours. Morphine may be of value in doubtful cases. The author, however, believes that when conditions permit of the performance of formal laparotomy, many cases

with severe injuries to the small intestines should be operated upon; though many will inevitably die under this treatment, some will be saved which would have died without operation.

The Surgery of the Stomach. A Handbook of Diagnosis and Treatment. By HERBERT J. PATERSON, M.A., M.C., M.B. (Cantab.), F.R.C.S., London. New and revised edition. With plates. New York: William Wood and Company. 1914.

The author explains that an extensive revision of his work is not called for, but that he has endeavored to profit by criticisms of the reviewers of the first edition. The chapter on the physiology of gastro-jejunostomy has been rewritten and a series of thirty x-ray plates added, photographed for use stereoscopically and reproduced in pairs. These and other minor changes increase the worth of an already valuable book. The author also presents a very interesting chapter on Appendicular Gastralgia, in which he endeavors to collate and systematize the knowledge of this interesting condition, in which a slightly chronic appendix causes gastric symptoms. In conclusion, he says, "No operation should be performed on the stomach, except when a definite organic lesion of the stomach or duodenum exists. Gastro-jejunostomy will not cure appendicitis. In all operations for supposed gastric or duodenal ulcer, the condition of the appendix should be investigated carefully." It is a pleasure to again recommend this excellent volume.

Effects of Volcanic Action in the Production of Diseases and Atmospheric Vicissitudes. By H. J. JOHNSTON-LAVIS, M.D., D.Ch., M.R.C.S., Eng., L.S.A., Lond., F.G.S. London: John Bale, Sons, and Danielsson, Ltd. 1914.

This monograph, which won the triennial Parkin prize of the Royal College of Physicians of Edinburgh, is an essay "on the effects of volcanic action in the production of epidemic diseases in the animal and in the vegetable creation, and in the production of hurricanes and abnormal atmospheric vicissitudes." Starting with the laudable motto that "science is the art of using common sense," the author, after a brief sketch of the physics and chemistry of eruption, and a discussion of some of its physical effects on human being and animals, examines a number of cases of its supposed relationship to epidemic diseases of man, animals, and plants, and comes to the rather obvious conclusion that this relation can be only indirect. Nor does he consider that any meteorologic phenomena of great importance can be attributed to eruptions. As an expert vulcanologist, he may properly expect his results to be accepted without question, though it should seem that they were so self-evident to the enlightened mind as hardly to require demonstration.

Letters to a Doctor and Others. By a Lover of Truth and Justice. Printed for Private Circulation. London: Wyman and Sons. 1914.

This volume consists of one 60-page letter to a physician, signed "Verb. Serp."; one of 18 pages, also to a physician, signed "A Lover of Truth and Justice"; one brief letter to a friend, signed "Sympathy"; and two brief, unsigned, non-epistolary essays, entitled "Chaos of Opinions" and "Suicides and Inquests." The author was prevented from writing an intended last chapter on "Head Injuries, Shock, and Sunstroke." The whole is by way of a lay polemic against the medical profession, or certain members of it, for their treatment of neurasthenia by suggestion, which the author terms "a horrible system of meddling interference." He considers the use of sanatogen or adalin the best method of treating insomnia. Apparently the work is one chiefly of symptomatic interest.

Atmospheric Air in Relation to Tuberculosis. By GUY HINSDALE, A.M., M.D., Hot Springs, Virginia. Published by the Smithsonian Institution, 1914.

This volume of 135 pages is one of the two prize-winning essays among the 100 entered in competition under the terms of the Hodgkins Fund of the Smithsonian Institution. There are 93 most excellent plates. These plates alone give this treatise distinct value and make it a noteworthy contribution to the literature on tuberculosis. The title, "Atmospheric Air in Relation to Tuberculosis," is a misleading one. The book consists of a most excellent description of the treatment of all forms and phases of pulmonary and non-pulmonary tuberculosis. It will prove of great value to every physician in looking up the climate of any resort to which he is considering sending some patient. It impresses the physician by its vivid description of Rollier's heliotherapy, with the wonderful results which can be obtained and are being obtained with this simple, inexpensive method of treatment. It discusses the relative values of high and low altitudes and moist and dry climates. The section devoted to open air schools and fresh air rooms is the latest word on this subject. Not only to physicians, but to nurses and to the general public will the little volume be of great service. It is to be hoped that it will be easily accessible to every one.

Dr. Hinsdale is to be congratulated upon the completion of such a high grade piece of work as this.

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THE MINISTER AND THE DOCTOR.

ON a large island off the coast of Maine a minister of the gospel is, at the present time, serving the inhabitants successfully in the dual capacity of adviser of the spirit and healer of the ills of the flesh. This union of the two professions has been a common practice among the missionaries in Eastern countries for a very long time. During the early days of the settlement of America the only physicians we had were the clergymen, who were versed also in medical lore. Such was Charles Chauncy, the second president of Harvard College, and such was Thomas Thacher, minister of the Old South Church in Boston. There are those who consider that today the holders of these combined offices are more highly trained in theology than in medicine, and the query has arisen in the minds of many whether in these days of specialties time serves for the acquirement of sufficient knowledge of both medicine and theology to make one individual proficient in the practice of both.

A recent experience in our midst along this line —the Emmanuel Movement—is not reassuring. The overworked clergyman found that twenty-four hours was too short a day in which to unravel the complicated interwoven threads of ill health of the many neurasthenic patients who consulted him, and his clerical duties suffered in consequence. Any physician who has had experience with nervous and mental disease knows that the element of time is an important factor in the treatment of these cases, and that each patient must receive exhaustive individual study. To the unprejudiced observer the physician trained in this particular field would seem to be the person best fitted to care for such sick. That the neurologist does not reach all the difficulties of the case is too often patent to both patient and relatives. Can he get help from the clergyman, and how? The healer's personality is so frequently the determining factor in effecting a cure, that to divide the care of a given patient with another may dissipate any beneficial influence the doctor may have. And this raises the question whether the practice of medicine is susceptible of any but individualistic treatment. The sending of a patient from specialist to specialist sometimes leaves the sufferer adrift so that when a squall comes up he knows not what to do. If his nautical sense tells him to lower his sail and toss out the anchor, he may ride out a stiff blow in safety. Now and then he fetches up on the rocks of skepticism, but all too often he is treated by an over-zealous specialist for ailments which are of no real account.

The clergyman, be he a man of sense and tact, and one who has had a long-standing knowledge of the patient, should be able to advise the physician intelligently in the conduct of the case. One can hear the family physician say to his medical consultant, "I have tried everything I can think of." But has he sought the assistance of the patient's spiritual adviser? Generally he has not.

In matters of public health no good reason has been advanced why there should not be some cooperation between the ministerial and the medical professions. Medical men are becoming more united every day. By means of national and state associations a very large proportion of the physicians of the country have come together and are crystallizing their ideas on the larger questions. In the case of the ministry the same tendency can be traced, but it has not got as far as with the doctors. The separate sects into which the Christian church is divided are no longer at loggerheads. Pulpits are exchanged by Baptist and Congregationalist. In one of the larger cities of Massachusetts thirty out of a total of forty churches are members of the Federation of Churches, to further social problems. The federation is supported by mutual subscriptions of one-tenth of one per cent. of the annual expenses of the constituent churches. In this city good work has been done in opposing intemperance, in promoting play-

grounds, in the vice campaign, and plans are being made to obtain better housing conditions for the poor.

Apparently conditions vary in different parts of our state, and this spirit of harmony among those of different religious faiths is unevenly distributed. Social problems in a given city can be studied best by both physician and clergyman working together. Thus the facts may be gathered, and, having the facts the succeeding steps of deciding what may be done and how it may be done follow in order.

The physician has been in the way of learning more about health problems than his clerical brother, from being brought into contact with them in his daily routine of duties, but he has been treating always individual cases. The minister has been considering the broad questions as applied to all of his parishioners, without too much accurate information often as to the mode of life of the individual. Surely the two should be brought together. The doctor should look at questions of health widely and from an idealistic standpoint and the clergyman should learn more of the materialistic facts. It must be apparent to even the most rigid dogmatist that however much men differ in their theological tenets, they are all agreed as to the need of controlling contagious and venereal disease, of securing proper sanitation, pure milk, pure food and drugs, and proper housing conditions for the poor.

How much easier to put the right sort of laws on the statute books when the influence of a united clergy can be joined with that of a united medical profession. We do not live in Utopia, to be sure, but is not the time ripe for coöperation of the two professions in solving public health problems, made possible by the Federation of Churches and the Massachusetts Medical Society? Let a committee from the federation meet a committee from the state society, discuss the entire situation and work out a plan of joint action.

PROGRESS OF RELIEF FOR THE EUROPEAN WAR.

The American relief ship, *Red Cross,* which sailed from New York on Sept. 13, docked safely, on Sept. 24, at Falmouth, England, where the units designated for British service were landed, and where Rear Admiral Aaron Ward went aboard to assume command of the expedition. On Sept. 30, the *Red Cross* sailed again for Brest, France.

"The French unit of the British Red Cross Society landed at Cherbourg, and has made its way northwards to get into touch with the British base. It is composed of twenty hospital-trained nurses, ten surgeons, and ten dressers. Lord Brassey has been kind enough to place his famous yacht, the *Sunbeam,* at the disposal of the society for any service, at home or abroad."

On Sept. 22 the American Red Cross issued the following appeal to the churches of the United States:—

"Our President has, by proclamation, designated Sunday, Oct. 4, as a day of prayer for peace. It has been suggested in many quarters that on this Sunday a collection be taken up in every church to relieve suffering in the war-ravaged countries of Europe. The Red Cross, which is charged with the special duty of aiding the sick and wounded in time of war, respectfully urges that opportunity be given in each church to every person who so desires to make a contribution to be given to the American Red Cross, which is impartially aiding every country in a spirit of common humanity, and which recognizes no distinction of race nationality. However, every contributor who desires to designate any particular fund or country to which his or her contribution shall be applied, may do so, and such request will be respected."

On Sept. 24 the New York Red Cross had received a total of $163,630.70, and the total American fund amounted to nearly $325,000. It is estimated that $15,000 a month will be required hereafter to maintain the first relief expedition already sent. The total of the Massachusetts fund on Sept. 24 was $23,040.33. In New York also the sum of $56,862.94 has been raised for the American Ambulance Hospital at Neuilly (Paris). It is reported that 250 wounded soldiers of all nations are now being cared for at this institution. In Chicago, $50,000 have been subscribed and cabled to the German and Austro-Hungarian Red Cross Associations. Funds are also being raised in American cities to relieve and care for Belgian and Alsatian non-combatants. In New York a national committee of mercy has been organized to undertake the relief of widows and orphans left destitute by the war.

The French correspondent of the *British Medical Journal,* writing from Paris under date of August 28, describes in part as follows the medical status of the city at that time.

"Medical progress in Paris is almost at a standstill. The societies have ceased to meet, except formally, and of lectures and discussions there are none. Such medical journals as still appear are greatly reduced in size and are entirely devoted to medico-military subjects. All medical men of serviceable age and physical fitness have been called to the colors, and hosts of students have been requisitioned. Many hospitals and laboratories have been almost denuded of their staffs, and it has been necessary in some of the important laboratories to call for voluntary assistance. Each hospital has a large proportion of its beds in readiness for wounded soldiers, and a great number of schools and private houses have been equipped as temporary hospitals. Staffs of medical men have allocated to them certain districts, the temporary hospitals in these districts coming under their care. The Americans resident in Paris have formed a Red Cross Society, and the response to their appeal for subscriptions has been excellent. Besides several houses, they have taken a large wing in the new Lycée Pasteur, and in the latter there are already 200 beds in readiness to receive patients. The British residents are also working strenuously, and although not yet officially under the Red Cross, the British Hospital, which is admirably equipped for the reception of cases requiring operative treatment, has received many generous offers. A great drawback to the emergency hospitals in Paris is the lack of trained nurses, the profession of nursing in France not being cultivated to the same degree as in England.

"The authorities have issued placards advising the people to be vaccinated against smallpox. This is done gratuitously in the different mairies. Up to the present no cases of smallpox have been reported. Professor Vincent's antityphoid vaccine is being extensively used both among civilians and in the army. The vaccine used here is polyvalent, the differing strains of the bacillus being obtained from France, Morocco and Tunis. Owing to the rapidity of the mobilization, very few soldiers at present on active service have been fully vaccinated against typhoid. Some have received two injections, the first of ¾ c.c., and the second of 1½ c.c. It is considered that these two injections give an appreciable immunity to the disease. The efficacy of Vincent's polyvalent vaccine is well demonstrated by the fact that in the garrison of Avignon from 1892 to 1912 there were 1263 cases of typhoid, necessitating 44,133 days of treatment. In 1913 the garrison was vaccinated, and not a single case was reported during that year."

Under date of Sept. 2 the Swiss correspondent of the *Lancet* writes from Zürich:—

"The sudden command of the Federal government called the complete Swiss army to arms in the first days of August. The rapidity of the mobilization was astonishing, as some 300,000 soldiers were under arms within two days and distributed all over the country and on all the frontiers in five or six days. Now the Landsturm, comprising men over 45, is slowly being dismissed. Owing to the clemency of the weather and the good sanitary arrangements only 44 deaths have been reported among the troops during August. Five of these were due to sunstroke, five to delirium tremens, six to suicide following mental derangement, and 13 to accidents. Two succumbed to typhoid fever, and the rest of the deaths followed various illnesses. The whole of the army was vaccinated or revaccinated. As regards infective diseases, 7 cases of scarlet fever and 11 of typhoid fever have been announced. The typhoid fever cases were placed in the hospital and measures taken to prevent any epidemic spread of the disease. Anti-typhoid inoculation is general."

Report from Vienna on Sept. 23 states that 9 cases of Asiatic cholera have already occurred among Hungarian troops in Galicia. It is sincerely to be hoped that the various army medical services may by their efficiency prevent the outbreak of serious epidemic infections among any of the troops.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY.

THE fifth annual meeting of the American Association for Study and Prevention of Infant Mortality is to be held in Boston from Nov. 12 to 14, 1914, under the presidency of Dr. J. Whitridge Williams, professor of obstetrics at the Johns Hopkins Medical School, Baltimore. Dr. Milton J. Rosenau, of Boston, professor of preventive medicine and hygiene in the Harvard Medical School, is first vice-president of the association, and Dr. Hugh Cabot, of Boston, is chairman of the local committee of arrangements.

The first general session will be held on Thursday afternoon, Nov. 12, at the Harvard Medical School, in conjunction with the Massachusetts State Conference of Charities. It will be devoted to two symposia, one on nursing and social work, especially pregnancy care, the other on pediatrics, vital and social statistics. A preliminary committee report on institution mortality and morbidity will be presented. The presidential address will be given at the evening session on this day.

In the afternoon of Nov. 13 there will be a session on obstetrics at the Copley-Plaza Hotel,

with three papers on the central theme of "a plea for increased and improved maternity hospital service." On Saturday morning, Nov. 14, a session on public school education for prevention of infant mortality will be held at the Copley-Plaza, with the special topic of continuation schools and classes.

"The American Association for Study and Prevention of Infant Mortality is one of the results of the conference on Prevention of Infant Mortality, held by the American Academy of Medicine at New Haven, Nov. 9-10, 1909. The association was organized at the close of that meeting, and in January, 1910, an office was opened in Baltimore, from which the work has since been directed.

"The objects of the Association are:

"1. To study the causes of infant mortality; to awaken an interest in the possibility of reducing the present unnecessary waste of infant life, and to formulate plans for preventive work.

"2. To act as a central clearing-house for the collection and dissemination of information regarding infant mortality and the work being done to prevent it.

"The work of the association is carried on—

"(*a*) By propaganda through the central office.

"(*b*) By investigation and by special work carried on by standing and special committees.

"(*c*) Through an annual meeting and the publication of annual transactions.

"(*d*) Through a traveling exhibit.

"The association believes that the present excessive death-rate among babies can be cut down at least one-half. It realizes that the first step in any campaign of prevention is the creation of a healthy, enlightened public sentiment. It asks everyone to help in awakening this interest by becoming a member and by interesting others in the movement.

"Organizations as well as individuals are eligible for membership. Affiliated membership is open to any society that is either interested in or that is engaged in some phase of baby-saving activity. The enrollment in this class includes departments of health, infant-welfare societies, nurses' organizations, state and local women's clubs, departments of home economics, etc. Through its affiliated membership the association is in touch with organized baby-saving work that is being carried on in sixty cities in thirty states.

"Individual membership is classed as active, contributing, sustaining or life, according to the amount of dues paid. Through its individual members the association is in touch with the men and women in every community who are taking the lead in activities for social betterment."

Among the affiliated organizations which will be represented at the meeting and from which reports will be presented, may be mentioned the women's clubs of Newton Center, Concord, Lawrence, Winchester, Needham, Melrose, Haverhill, the Roxburghe Club, the Women's City Club of Boston, the Women's Municipal League, the Fathers and Mothers' Club, the Women's Educational and Industrial Union, and the Springfield Boys' Club. Delegates will also be sent from the Boston children's institutions department, the Boston Board of Health, the Massachusetts Homeopathic Hospital, the Mt. Sinai Hospital, the Milk Fund, the Infants' Hospital, the Anti-Tuberculosis Association, the Massachusetts Society for the Prevention of Cruelty to Children, the Church Home, the State Board of Charity, the United Improvement Association, Dorchester House, Hebrew Industrial School, the Boston Lying-in Hospital, the Federated Jewish Charities, the Boston Society for the Care of Girls, the New Bedford Children's Aid Society, the Society for Helping Destitute Mothers and Infants, and the Springfield Baby Feeding Association.

A NATIONAL DEPARTMENT OF PUBLIC HEALTH.

THE proposition to establish a national department of health under the United States federal government, with a secretary who shall be a member of the president's cabinet, has for several years been advocated before the public by physicians and other enlightened men of affairs. The Owen bill, which sought to embody this project in legislation, was, however, twice defeated in the national congress by interests which opposed the so-called "doctors' trust." At the annual meeting of the American Medical Association in Atlantic City, N. J., on June 30, 1914, active interest in the subject was renewed, and the following list of 15 reasons was adopted as indicating the purposes of such an organization and the need for its establishment:—

"1. To stop the spread of typhoid fever through drinking the sewage-polluted water of the interstate streams.

"2. To enforce adequate quarantine regulations in order to keep plague and foreign diseases out of the country.

"3. To supervise interstate common carriers to protect the public health.

"4. To have a central organization of such dignity and importance that departments of

health of states and cities will seek coöperation and will pay heed to its advice.

"5. To influence health authorities, state and municipal, to enact reform legislation in relation to health matters.

"6. To act as a clearing house for health regulations and to codify such regulations.

"7. To draw up a model scheme of sanitary legislation for the assistance of state and municipal officers.

"8. To establish the chief causes of preventable diseases and unnecessary ill health.

"9. To study conditions and causes of disease occurring in different parts of the United States.

"10. To correlate and assist investigations conducted in biological and pathological laboratories.

"11. To consolidate and coördinate the many separate government bureaus now engaged in health work.

"12. To effect economies in these bureaus.

"13. To publish and distribute throughout the country bulletins in relation to human health.

"14. To apply our existing knowledge of hygiene to our living conditions.

"15. To reduce the death-rate."

In his address in discussion of this subject, Dr. Thomas D. Coleman, professor of the principles and practise of medicine in the University of Georgia, spoke in part as follows:—

"Charon's passage money,—the death toll,—is exacted largely by preventable diseases. Smallpox, cholera, and yellow fever have been banished as scourges from civilized communities, and by whom? The men whose private interests might have been fostered by the continuance of these epidemics that carried off thousands and tens of thousands.

"I do not wish here to be understood as decrying the value of municipal, county and state boards of health. So long as a city or county can control its health problems, the state does not essay to interfere; but when they, through inability, wilfulness or ignorance, lose such control, then the state reserves the right to interfere, or, if you please, assist and direct. This must of necessity be the province of a national department of health. State laws being at variance and legislators under one sort of influence or another, it is well to have sanitary laws enacted, which can be enforced, irrespective of state and territorial lines."

In the September issue of the *Southern Medical Journal* is an editorial commenting similarly on this subject, and urging the appropriateness and desirability of developing the present United States Public Health Service into such a department, enlarging and coördinating its work, and appointing as its first secretary, Dr. William C. Gorgas, surgeon-general of the United States Army, who by his achievement at the Panama Canal Zone has shown himself the foremost sanitarian in America. Whether or no Dr. Gorgas would accept such an appointment, there can be no question of his eminent qualifications for it. That such a department should be created, probably all regular physicians are agreed, and its establishment awaits only the overcoming of ignorant or prejudiced opposition.

MEDICAL NOTES.

BUBONIC PLAGUE IN NEW ORLEANS.—Report from New Orleans, La., states that 2 new human cases of bubonic plague were discovered in that city on Sept. 22, making a total of 28 since the outbreak of the infection on June 27. One of these new cases has died; the other will probably recover.

JOHNS HOPKINS SEMI-CENTENNIAL.—The fiftieth anniversary of the Johns Hopkins Medical School, Baltimore, is to be celebrated in that city next week, and on Oct. 7 the new James Buchanan Brady Urologic Institute is to be dedicated.

"In connection with this dedication, a dinner will be given its donor. Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, will preside at the dedicatory exercises. President-elect F. J. Goodnow of Johns Hopkins University and Dr. Hugh H. Young, through whom the funds for the institute were offered to Johns Hopkins, will be among the speakers.

"The celebration will open Monday, Oct. 5, which will be known as Nurses' Day. All the graduates of Johns Hopkins Training School for Nurses have been invited. There will be a commemorative meeting at which Dr. William H. Welch will preside. Sir William Osler, Dr. Henry M. Hurd and Miss M. A. Nutting, former superintendent of the nurses' training school, will speak. There will be a garden party following the meeting on the hospital lawn. At night the nurses and the Johns Hopkins Hospital Alumni will hold banquets. For the next three days there will be clinics, reunions and other celebrations, the jubilee being brought to a close Thursday, Oct. 8."

LONDON DEATH-RATES IN JULY.—Statistics recently published show that the total death-rate of London for July, 1914, was only 11.3 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 18.8 in Shoreditch, an east end slum, and the lowest was 7.1, in the central city.

DENISON MEMORIAL BUILDING.—It is announced that the new Henry S. Denison memo-

rial building for medical research at the University of Colorado is now ready for use. Its laboratories will be devoted to investigation in bacteriology, pathology, physiology, chemistry and clinical methods.

A Practitioner at Ancient Sardis.—In a recent issue, the *Lancet* comments editorially as follows on the discovery of an ancient physician's memorial at Sardis.

"We have on many occasions written of the medical personalities of ancient Greece and Rome, concerning whom archaelogical research has come upon some details. We may particularly refer to the case of Menophantos, the public or municipal physician of Amphissa, near to Delphi, and to that of Aurelius Heron and Aurelius Didymus, public physicians of Oxyrrhynchus. Another name has now to be added to these prosopographia of medical men in classical times. It is that of a practitioner at Sardis, in Asia Minor, whose memorial has been found by United States explorers when excavating upon the site of that ancient Lydian and Roman city. The inscription reads as follows: 'Artemas a physician (ἰατρός) built this tomb for himself, and for Melitene his wife, and for his heirs; he is living.' The title of 'iatros' may suggest that Artemas also was a public physician. Such medical officers were very frequently employed by the Greek cities of Asia Minor, and in inscriptions their official epithet, such as δημόσιος or δημοσιεύων, was commonly omitted. The usual number in office in a town varied from five to ten. The nearest date assignable to this new text is the first century B.C."

BOSTON AND NEW ENGLAND.

Pellagra in New Hampshire.—Report from Concord, N. H., states that on Sept. 17 there were two deaths from pellagra at the New Hampshire State Hospital in that city, making a total of five fatal cases of the disease since July 1 among inmates of this institution.

A Seafaring Centenarian.—Captain Joseph S. Byxbee, who died on Sept. 10 at South Norwalk, Conn., is said to have been born in 1811. He followed the sea for over 80 years of his life, and had been a skipper since 1850.

Hospital Bequests.—The will of the late Henry R. Dalton, recently filed in the Suffolk registry of probate, contains a bequest of $1000 to the Massachusetts General Hospital.

The will of the late J. B. F. Thomas, of Boston, recently filed in the Suffolk registry of probate, contains a bequest of $3000 to the Vincent Memorial Hospital.

Report of Faulkner Hospital.—The recently published tenth annual report of the Faulkner Hospital, Jamaica Plain, Mass., records the work and progress of that institution for the year ended May 1, 1914. During this period 513 patients were treated in the hospital, of whom 39 were cases of childbirth. Six nurses were graduated from the training school.

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Sept. 22, 1914: Diphtheria, 39, of which 5 were non-residents; scarlatina, 39, of which 4 were non-residents; typhoid fever, 18, of which 2 were non-residents; measles, 11, of which 1 was non-resident; tuberculosis, 57, of which 2 were non-residents. Death-rate for the week, 16.74.

NEW YORK.

Twilight Sleep.—On Sept. 17, Dr. A. J. Rongy of New York read a paper before the American Association of Obstetricians and Gynecologists, at its annual meeting in Buffalo, on "Twilight Sleep," the scopolamine-morphine method of abolishing pain and memory in labor cases. This is the first authoritative statement on the subject which has been made before a representative medical body since this treatment received its present impetus in this country, and the speaker, having related the history of its development during the past twelve years, gave a detailed report of some 125 cases recently observed at the Jewish Maternity and Lebanon Hospitals in New York, where the method was introduced by Dr. K. Schlossingk, who for two years was an assistant to Kronig and Gauss at the Frauenklinik, Freiburg. The cases, he said, had been divided into three groups, with the following results: 1, 104 cases, or 83.2%, in which there was complete analgesia and amnesia. 2, 9 cases, or 7.2%, in which there was analgesia without amnesia. 3, 12 cases, or 9.6%, in which the treatment failed to produce the desired results. The average time that the patients were under the influence of the drugs was about six and one-half hours. The number of infants which cried spontaneously was 102, or 81.6%, and there were 4 cases, or 3.2%, of asphyxiated children. The total infant mortality was 3, or 2.4%. One of the deaths was in a premature infant with spina bifida; the second child died from melena neonatorum, and the third from subdural hemorrhage. Among Dr. Rongy's conclusions were the following: Standard solutions are absolutely essential for the success of this treatment. No routine method should be adopted; each patient should be individualized. Facilities should be such that the patient is not unduly disturbed. A physician or nurse should be in constant attendance. This form of treatment does not affect the first stage of labor, though under it the second stage is somewhat prolonged. It does not in any way interfere with any other measures which may be deemed necessary for the termination of labor. To condemn or advocate a given therapeutic method without a thorough personal investigation is truly unscientific, and

not in accordance with the tenets of progressive American medicine.

STATE SANITARY OFFICERS.—At the fourteenth annual conference of state sanitary officers, which was recently held at Saratoga Springs, Commissioner Biggs of the State Department of Health formulated a plan by which it is estimated that at least 25,000 lives may be saved in the state in the next five years. This looks to the organization, throughout the state, of county sanitary leagues with a wider scope than the anti-tuberculous leagues now in operation, in which professional and lay interests will work together, by conference and active efforts, in promoting the general health Some 700 health officers and other physicians were in attendance at the Saratoga conference, and the sentiment in favor of the proposed plan was unanimous. In commenting on the project Prof. C. E. A. Winslow, director of the Division of Publicity and Education in the State Health Department, remarked: "The efforts of health workers will now be directed toward making the people realize that the work is an important constructive force for the betterment of public health and sanitation, rather than an official force of repression to keep them from endangering the health of others. This health work will enlist the coöperation of the citizen. It will do things for him, instead of merely keeping him from doing things. The new plan will be vastly different from the old 'smelling out' campaign for the suppression of nuisances and the performance of the old quarantine officer, armed with a gun and a tin badge."

NEW YORK UNIVERSITY.—New York University offers courses of collegiate grade, leading to the baccalaureate degrees of B.A. and B.S., to graduates of recognized medical schools and colleges. Holders of recognized medical degrees are admitted with advanced standing to the sophomore class and, upon the completion of three years of study, will be recommended for the baccalaureate degree. Practically all the courses of instruction are given at Washington Square College, of the university, which is centrally located and much more accessible than the main university buildings in the Borough of the Bronx, and they are offered in the late afternoon and on Saturdays, so that practising physicians may attend without serious inconvenience or sacrifice. Certain evening courses of collegiate grade offered at the Washington Square College and elsewhere by the Extramural Division may also be taken for credit. Courses in the University Summer School are accepted for credit when they are substantially equivalent to those offered by the Washington Square College during the winter. The course of study leading to the degree is especially planned to meet the needs of mature students. While certain fundamental courses are required, the greater portion of the work is elective; thus making it possible for students to take courses which will best meet their individual needs. Those who do not desire to take all the work required for the degree may enter as special students. Courses of collegiate character in biology, chemistry, physics, etc., it is thought, should prove specially attractive and profitable to such students.

FREE PUBLIC MARKETS.—Borough President Marks has made public reports from the Department of Health, showing that the four free markets recently opened in Manhattan, at which household supplies are to be had at lower prices than those asked at the ordinary markets and shops, are in good condition, both as to sanitation and the quality of the good sold. At first there were some violations of the department's regulations, but these were not made public as it was feared that this might have a deterring effect on the patrons of the markets, and the abuses have been quietly remedied.

MORTALITY FOR WEEK ENDING SEPTEMBER 19, 1914.—The mortality for the week just passed was typical of the low mortality prevalent in this city during the months of September and October. The rate was quite low, twelve persons dying out of every one thousand residents in the city. The most noteworthy items of the week's mortality was the considerable increase in the number of deaths reported from diphtheria, diarrheal diseases and violent deaths, as compared with the corresponding week in 1913. Each of the boroughs, with the exception of the smallest borough, Richmond, showed an increase in the number of deaths reported from diphtheria and croup. Diarrheal diseases of infants was considerably above that of the corresponding week in 1913, the most prominent factor being the unfavorable meteorological conditions, the thermometer ranging considerably above the average for this week. The increase in the deaths from violence was due to an increase among the accidental deaths, homicidal deaths and suicidal deaths. For every one person that committed suicide during the week ending Sept. 20, 1913, there were two who took their lives during the past week.

The number of deaths from organic diseases of the heart and kidneys was slightly, while that from respiratory diseases was considerably below that of last year Notwithstanding the increased mortality from some of the causes above mentioned, the number of absolute deaths was 29, and that of relative deaths 82 below the figures of last year.

Viewed from the point of the age groups, the mortality of children under five years of age was approximately the same, whilst that of persons over five years was considerably below the mortality for the corresponding week in 1913.

The death-rate for the first thirty-eight weeks of this year was 13.94 per 1000 as compared

with a rate of 14.20 for the corresponding period of 1913.

The mortality for the last quarter of the year, as a rule, is considerably lower than that of the other quarters, and the probabilities are strongly in favor of a death-rate for the year considerably below 14 per 1000.

Current Literature

Medical Record.

September 12, 1914.

1. Mallory, W. J. *The Physiology of Gastric Motility.*
2. *Williams, C. M. *The Present Stage in the Treatment of Syphilis.*
3. Bell, G. H. *Report of a Case of Tuberculosis of the Sclera of Probable Primary Origin.*
4. Nascher, I. L. *The Neglect of the Aged.*
5. Davis, M. M., Jr. *A Medical Bugbear: Dispensary Abuse.*
6. Montgomery, D. W. *Syphilophobia.*

2. Williams discusses the present status of syphilis therapy. Early claims for salvarsan were exaggerated, but the drug is very valuable. Every case should have both salvarsan and mercury. Neosalvarsan has the great advantage over salvarsan that it can be given in much more concentrated solution. Mercury is best given intramuscularly, as the salicylate dissolves in liquid albolene. Treatment should be given in courses of from four to seven weeks with intervals of six weeks, until symptoms disappear or the Wassermann becomes negative. The iodides are still valuable in late syphilis. [L. D. C.]

New York Medical Journal.

September 12, 1914.

1. Fishberg, M. *Tuberculization and Immunization.*
2. Kellogg, J. H. *The Paraffin Treatment of Constipation.*
3. Knapp, M. I. *Newer Teachings Concerning Diseases of the Gastro-intestinal Tract.*
4. Cumston, C. G. *The Indications of Gastric Ulcer and Its Surgical Treatment.*
5. Saphir, J. F. *Appendicostomy in a Case of Chronic Ulcerative Coloproctitis.*
6. Jones, J. P. *A Clinical Study of the Renal Functional Activity by Means of Phenolsulphonephthalein.*
7. *Marcus, H. *A Case of Sciatica Entirely Cured in Three Weeks' Treatment.*
8. Greeley, H. *Systematized Education of the Public in Health Matters.*
9. Loomis, M. M. *The Contributions Which Women Have Made to Medical Literature.*

7. Marcus reports an intractable case of sciatica completely relieved by two injections (one week apart) of 16 minims each of a solution made up as follows: antipyrin 5iiss, cocaine muriate gr. iiss, water 5iiss. [L. D. C.]

The Journal of the American Medical Association.

August 15, 1914.

1. Ophüls, W. *Anatomic Structure and Function.*
2. Keene, F. E., and Pancoat, H. K. *The Present Status of Pyelography.*
3. Bartlett, W. *A Report of Twenty-Seven Unilateral Exclusions of the Pyloric Region, with Special Reference to Operative Technic.*
4. Petery, A. K. *A Microcephalic Idiot with Malformation of Brain.*
5. Goldspohn, A. *Fundamental Intrapelvic Perineorrhaphy.*
6. Stierly, E. *Enucleation with Transplantation of Fat into the Orbit.*
7. Howle, P. W. *Report of a Case Simulating Elephantiasis.*
8. Redfield, W. *Infection of Nasal Cavity from Diseased Tooth Root. Specimen Showing Pathway of Infection Through the Maxillary Sinus.*
9. Corbus, B. C. *Cerebrospinal Examinations in "Cured" Syphilis. Cases in Which the Biologic Method as a Control Has Been Used.*
10. Fordyce, J. A. *The Treatment of Syphilis of the Nervous System.*
11. Baeslach, F. N. *The Sero-Enzyme Test for Syphilis.*
12. Kingsbury, J., and Becht, P. E. *The Intravenous Administration of Mercury in Syphilis.*
13. Theobald, S. *The Etiology of Phlyctenular Ophthalmia. Is Tuberculosis Really as Important a Factor in the Causation of This Disease as is Now Commonly Taught?*
14. Zentmayer, W. *A Study of the Effect on Heterophona of the Correction of Anatropia, with a Consideration of Some Associated Conditions.*
15. Neuhof, S. *Functional Heart Block in Pneumonia.*
16. Miller, D. J. M. *The Toxicity of Camphor (Camphorated Oil).*
17. Porcher, W. P. *Rapid, Painless, Bloodless Method for Removing the Inferior Turbinate.*

August 22, 1914.

1. *Novak, E. *The Pathologic Physiology of Uterine Bleeding.*
2. *Kelly, H. A., and Burnam, C. F. *Radium in the Treatment of Uterine Hemorrhage and Fibroid Tumors.*
3. Pfahler, G. E. *Roentgenotherapy in Uterine Hemorrhage.*
4. Weiss, L. *An Unusual Case of Bromoderma of the Leg.*
5. Foster, M. H. *Favus and Ringworm of the Nails.*
6. Clarke, W. C., and Bancroft, F. W. *A Course in Surgical Technic.*
7. Pritchett, H. S. *The Medical School and the State.*
8. Henriques, A., and Ambrose, L. *Instruction in Roentgenology.*
9. Ferrell, J. A. *Public Health Work as a Career.*
10. Frankenberger, C. *The Value of the Medical College Library to the Student.*
11. Gross, L. *Foreign Bodies in the Bladder.*

1. Novak believes that aside from anatomic causes, such as cancer, fibroids, etc., uterine hemorrhage may often be due to fundamental disturbances, such as those of the nervous system or the internal secretions, involving derangement of the chain of ductless glands, of which the ovary, of course, is the most common. These fundamental causes are especially effective at puberty and at the time of the menopause.

2. Kelly and Burnam are extremely enthusiastic over the intrauterine use of radium in the treatment of uterine hemorrhage, especially that due to polyps or fibroids. They have treated very successfully four groups: 1. Adult women with marked metrorrhagia, with no disease of the pelvic organs except a slight enlargement of the uterus. 2. Cases of hemorrhage in young girls. 3. Polypoid growths or polypoid endometritis. 4. Fibroids. They use the word marvelous to indicate the degree of success of this treatment. [E. H. R.]

AUGUST 29, 1914.

1. *BASTEDO, W. A. *The Medical Treatment of Chronic Intestinal Stasis.*
2. JACKSON, E. *International Standard for Testing Vision and Standardizing Other Visual Tests.*
3. DUANE, A. *Convergence Insufficiency.*
4. SCHAMBERG, J. F., RINGER, A. I., RAIZISS, G. W., *and* KOLMER, J. A. *Summary of Research Studies in Psoriasis.*
5. MACKEE, G. M., AND WISE, F. *White-Spot Disease.*
6. *SIMPSON, F. E. *Radium. Its Use and Limitations in Skin Diseases.*
7. HOLDING, A. F. *The Relative Value of Radium in Dermatology.*
8. *NEWCOMET, W. S. *Radium and the Roentgen Rays in Radiotherapy. Their Uses and Limitations.*
9. *JOHNSTON, G. C. *The Place of the Roentgen Ray in Therapeutics.*
10. FISHER, C. *Epithelioma of the Lids.*
11. *MACLAREN, A. *A Study of Three Hundred Cases of Appendicitis, with Special Reference to Pelvic Complications.*
12. *MOORE, J. E. *Has the Last Word Been Spoken Concerning Appendicitis?*
13. MCLEAN, A. *Thrombosis and Embolism, Their Significance and Consequences in Abdominal and Pelvic Surgery.*
14. DICKINSON, R. L. *Standardization of Surgery. An Attack on the Problem.*
15. KARPAS, M. J. *Kraepelin's Conception of Paraphrenia.*
16. *BEEBE, S. P. *The Relation of Pathologic Conditions in the Nose and Throat to the Origin and Treatment of Hyperthyroidism.*
17. ROBINSON, G. W. *The Use of Celluloid Splints in the Treatment of Diseases of the Nervous System.*
18. UNDERWOOD, H. L. *Anaphylaxis Following Skin-Grafting for Burns.*

1. Bastedo spends some space in his article describing the use of liquid paraffin (petrolatum liquidum) as a laxative in chronic intestinal stasis, and speaks highly of its advantages.

6, 7, 8, 9. This symposium on the use of radium and the roentgen ray, particularly in dermatology, places radium as of greatest value, preceding the roentgen ray. Simpson has found it of especial value in angiomata. Both forms of radiation should be tried, for often if one ray is lacking in effect the other will be powerful.

11. MacLaren pleads the frequent employment of rectal examinations after the operation for perforated appendix. He is an advocate of early rectal drainage.

12. Moore pleads for the leaving in of some appendices in order to save the patient. There are about 5% of cases in which it is not safe to break down nature's adhesions and try to remove the appendix. It is safer to be content with drainage only.

16. Beebe believes that chronically enlarged tonsils and adenoids with low grade infection and allied conditions are potent factors in producing hyperthyroidism. [E. H. R.]

SEPTEMBER 5, 1914.

1. KINKE, E. G. *A Few Points of Practical Importance in Obstetrics, Gynecology and Abdominal Surgery.*
2. MENDEL, L. B. *Newer Points of View Regarding the Part Played by Different Food Substances in Nutrition.*
3. FOLIN, O. *Intermediary Protein Metabolism.*
4. LUSK, G. *The Specific Dynamic Action of the Foodstuffs.*
5. DUBOIS, E. F. *The Total Energy Requirement in Disease as Determined by Calorimetric Observations.*
6. RUTH, C. E. *Common Errors in Gall-Tract Surgery.*
7. ZIEGLER, S. L. *Trefoil or Stellate Keratectomy for Anterior Staphyloma.*
8. WOODS, C. S. *Immunity in Measles.*
9. PRIMROSE, A. *Retroperitoneal Hernia Due to an Aberrant Middle Colic Artery.*
10. WALKER, C. B. *Further Observations on the Hemiopic Pupillary Reaction Obtained with a New Clinical Instrument.*
11. SMITH, H. E. *Safe and Speedy Extraction of the Immature Cataractous Lens Following Preliminary Capsulotomy.*
12. PARK, W. H., AND ZINGHER, A. *Active Immunization in Diphtheria and Treatment by Toxin-Antitoxin.*
13. WOODY, S. S. *The Use of Antitoxin in Diphtheria.*
14. BLAIR, V. P. *Treatment of Unlocalized Intracranial Injuries by Drainage Through a Subtemporal Approach.*
15. JOHNSON, G. T., BREAKS, L. Z., *and* KNOEFEL, F. *The Treatment of Tabetic Optic Atrophy with Intraspinal Injections of Salvarsanized Serum. A Preliminary Report.*
16. *WALLER, C. C. *Appendiceal Inflation.*

16. Waller reports an extremely interesting case in which the appendix became suddenly greatly inflated while the patient, only partly etherized, was straining. The effort to reduce the inflation when the patient became relaxed was not entirely successful and was due to the presence of a No. 6 bird shot found at the base of the appendix on removal. The author believes that many cases in which there is intense suffering before operation, and in which a practically normal appendix is found at operation, are cases in which a fecal concretion was present and has later been expelled. [E. H. R.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

BAND 116. HEFT 1 AND 2. JULY 17, 1914.

1. *MONAKOW, P. *Essay on the Knowledge of Renal Disease. Mixed Forms.*
2. HERTZ, R., AND EHRLICH, M. *Effect of Small Doses of Tolylenediamine on the Blood, with Remarks about the Origin of Experimental Hyperglobulia.*
3. LIEBECK, R. *The Analysis of Very Small Amounts of Nitrogen in Organic Material.*
4. WEISER, E. *Presystolic Murmurs with Auricular Flutter.*
5. LEHNDORF, A. *The Question of the Suction Action of the Heart.*
6. KALSER, W., AND LÖWY, J. *Variations of Serum Concentration in Scarlet Fever.*
7. TANJI, Z. *Experiments on the Relation of Ammonia and Total Nitrogen in the Urine with Different Diets, Especially with Rice Diet.*
8. GOEBEL, F. *Meningitis and Sepsis in the Newborn by the Proteus Organism, with Remarks about Proteus Bacillus as a Cause of Disease in Man.*
9. LICHTWITZ, L., AND STROMEYER, F. *Investigation of Renal Function in Diabetes Insipidus.*
10. WALLERSTEINER, E. *Investigation on the Relation of Total Metabolism to Albuminous Metabolism in Carcinomatosis.*

1. Monakow in this report takes up the study of what he calls mixed forms of nephritis. By this he means those cases in which there is a disturbance in both the elimination of sodium chloride and nitrogen. In the cases with disturbance only in the sodium chloride elimination the uremic symptoms are wanting, the blood pressure is low and there is a tendency towards edema. The marked edema only occurs with injury to the peripheral vessels. With increase of

salt to the diet the body weight increases and the urine amount falls. In these cases urea acts as a diuretic and as one of the best ones. This form of nephritis is due to lesions of the tubules and only occurs in the acute form. The tubules are able to regenerate and healing takes place. If the injury to the tubules continues then certain of the glomeruli are destroyed, and the mixed form with disturbance of the elimination of nitrogen as well as salt occurs.

Other cases of renal disease occur in which the nitrogen elimination is at fault. In these cases, if the circulation is all right, the salt elimination is normal. The tissues act as a reservoir for the nitrogen, and so the blood nitrogen does not increase in all cases. Excess of saturation in the tissues or sudden increase in albuminous destruction in the body causes the blood nitrogen to rise. Acute cases such as the above, in which the glomeruli are chiefly at fault, may get well. Usually, however, the tubules are more or less injured and then disturbance with the salt excretion also occurs.

He also has studied cases of high pressure without evidence of renal disease except slight albuminuria and other cases with considerable albumen in the water without other evidence of impaired renal function. Further study will be necessary to see if there are subdivisions in the so-called mixed forms of nephritis.

He has not been successful in finding appreciable differences in the codine and milk sugar excretions in the different forms of renal involvement. He also does not feel that the hypersensitiveness of the renal vessels can be told by these special substances, as Schlayer believes.

The excretion of phenolphthalein if low is indicative of renal disease. Many cases of renal disease show a normal phthalein elimination,—50% in two hours is his lower level of normal. An elimination of more of the dye in the second hour than the first he does not consider of pathological significance.

[C. F., JR.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 24. JUNE 11, 1914.

1. SLUKA, E., AND SPECK, B. *The Use of Albumen Milk in the Home and in the Hospital.*
2. *KIRSCHBAUM, P., AND KÖHLER, R. *The Differentiation of Bacteria by Means of Abderhalden's Dialyzation Method.*
3. ULLMANN, K. *Experiments on the Action of Arsenic on the Organs.*
4. BAUM, O., AND HENENHEISER, G. *Chemotherapeutic Research with Salvarsan.*
5. NEUGEBAUER, H. *Secondary Syphilis and Stomach Changes.*
6. UNGÁR, J. *A Case of Luminal Poisoning.*

2. The authors conclude that the differentiation of bacteria by means of Abderhalden's dialyzation method is not practical. [F. S. K.]

No. 25. JUNE 18, 1914.

1. v. FÜRTH, O. *Lactic Acid in the Urine and Its Connection with Carbohydrate Metabolism.*
2. FRANK, O., AND v. JAGIC, N. *The Treatment of Phthisis by Pneumothorax.*
3. CONSTANSOFF, S., AND MANSILOFF, E. *Action of Digestive Ferments on Fish Poison.*
4. SHENK, F. *The Ferments in Antitoxins.*
5. VOGEL, R. *Pathogenesis of Ilius.*
6. STRASSBERG, M. *Treatment of Gonorrheal Vulvo-Vaginitis in Children.*

No. 26. JUNE 25, 1914.

1. KRAUS, R. *New Experience with Filtrable Viruses.*
2. KELLING, G. *Blood-serum Tests for Carcinoma by a New and Simple Method.*
3. SPAT, W. *The Question of the Source of Antibodies in Syphilitic Spinal Fluid.*
4. *BICHLER, H. *X-ray Cancer.*
5. *WORONYTSCH, N. *The Question of Menstrual Enlargement of the Thyroid.*
6. BERLINER, M. *A Case of Hysterical Monoplegia.*

4. The author reports on four cases of x-ray cancer. Cases 1, 2 and 3 were in workers, case four was in a patient. Two of the workers had syphilis. None of the cases were fatal, under treatment of amputation. The interval between first signs and development was long,—8, 14, 15, and 18 years respectively.

5. The author measured the thyroid in 53 patients with various diseases 700 times during menstrual periods. The method was with an elastic band placed about the neck over the vertebra prominens. He could demonstrate no thyroid enlargement during periods. [F. S. K.]

Obituary.

ARCHIBALD THOMPSON DAVISON, M.D.

DR. ARCHIBALD THOMPSON DAVISON died at his home in Cambridge, September 19, 1914, aged 70 years. He was born in Nova Scotia, was a graduate of the Harvard Medical School in the class of 1871, practised in South Boston for many years, and removed to Dorchester about 1895. Here he practised until 1912, when he gave up active practice and took a residence in Cambridge. Dr. Davison was a member of the Boston School Committee and president of the Colonial Club while living in Dorchester. He was a Fellow of the Massachusetts Medical Society, a Mason and an Odd Fellow. He is survived by his widow and four children, one of whom is Dr. Arthur H. Davison of Dorchester.

MORRIS LONGSTRETH, M.D.

DR. MORRIS LONGSTRETH, of Cambridge, Mass., died at Barcelona, Spain, Sept. 19, 1914, aged 68 years. He was a graduate of Harvard College in the class of 1866 and of Haverford College, Pennsylvania, in 1869, receiving the degree of M.D. from the University of Pennsylvania in 1869, and from the Jefferson Medical College in 1876. He was professor of pathology in the Jefferson Medical College for many years and practised in Philadelphia, with a summer practice in Bar Harbor, Me. He was a member of the Association of American Physicians, of the Pathological Society of Philadelphia and of the American Medical Association.

Dr. Longstreth had been traveling abroad for his health. His wife died in Barcelona last month.

Miscellany.

THE DECREASING GERMAN BIRTH-RATE.

IN the issue of the JOURNAL for Aug. 20 (Vol. clxxi, p. 325) we published an item on "foreign birth-rates and the European war," in which we commented on the fact that "the Germans have already, especially in the larger cities, begun to feel and show the debilitating and deteriorative effects of modern civilization." This aspect of comparative racial decline is further analyzed in the following consideration by A. Allemann of "the decreasing birth-rate of the German empire," in the issue of *Science* for Sept. 11:—

"During the thirty years following the war with France the population of Germany increased enormously while the population of France remained almost stationary. But at the begining of the new century the birth-rate in Germany began to decline and is still declining at a rapid rate. In an article in No. 18 of the *Münchener Medizinische Wochenschrift* Dr. von Gruber gives some remarkable facts about the decreasing birth-rate in Germany, which are the more interesting as the same causes are underlying a decreasing birth-rate in certain classes and certain regions of the United States.

"Von Gruber shows that while the number of marriages in Germany remained about the same (80 per 10,000 inhabitants) the birth-rate sank from 370 in 1900 to 310 in 1910. This decrease is especially marked in the cities and industrial regions. In Berlin the number of births per 10,000 inhabitants decreased from 149 in 1876 to 93 in 1912. But not only the cities; the country districts, too, show a gradual decrease in the birth-rate. Especially is this noticeable in the districts adjoining large cities. In general this decrease is more marked in regions with a predominantly Protestant population, and with regard to politics, in those election districts which send regularly a socialistic member to the Reichstag.

"Considering the causes of this general decline of the birth-rate, von Gruber thinks that it is principally due to prevention of conception. He recognizes the fact, however, that this decrease is to some extent unintentional. Many of the best families die out though children are ardently desired. The causes of this phenomenon are not fully known, but alcoholism and the venereal diseases are probably the principal underlying causes.

"Of special significance is the insufficient increase of the birth-rate among the intellectual classes. For the safety, progress and prosperity of any nation a sufficient number of persons who are leaders of the people is necessary. Without her great statesmen and generals, her leaders in commerce and industry, in the arts and sciences, the enormous development of modern Germany would have been impossible. Both Greece and Rome perished from a steadily decreasing birth-rate of the ruling race, and it is a remarkable fact that during the decline of the Roman Empire no great statesmen and generals, no great thinkers, artists and scientists, appeared. It was a period of complete stagnation. The same is true of the declining periods of Greek history.

"In view of the more difficult living conditions of modern times von Gruber recognizes the right of the parents to limit the number of their children, but this limitation should not be carried so far as to endanger the safety of the state. The desire for wealth and luxury, the movement of woman's emancipation, the disappearance of a deep religious sentiment are the most destructive agencies in modern society. The destructive effects of the abandonment of old orthodox beliefs is shown by the fate of the Jewish race. Under the faithful observation of the Mosaic law the Jews maintained the strength and vigor of their race through thousands of years in the face of all opposition and persecution, but in modern times the Jews, at least so far as Germany is concerned, are threatened with extinction. They have abandoned their ancient faith, they hold the most advanced views on life, their writers are the most fanatic agitators for the overthrow of marriage and the established order of sexual relations. The chase after money, the thirst for power and pleasure, has blinded them to the fact that they are facing extinction through race suicide. These conditions are especially marked among the Jews of Berlin. From 1875 to 1910 the Jews of Berlin increased 100%, but the number of Jewish births decreased during the same period 11%. In 1905 the number of births per 1,000 Jewish women in the child-bearing age was only 56.8. At present their natality is only 14 per 1,000. Still less is the natality among the Jews of Bohemia and Moravia, where, according to recent statistics, it sank to 12.9 per 1,000,—the lowest birth-rate known among any race. This enormous decrease of births among the Jews shows that the phenomenon is not due to poverty and indigence, for the Berlin Jews are among the best situated people of that city.

"A reasonable increase in population is absolutely necessary for any people to maintain its position among the nations. If the two-children system should be carried out generally, von Gruber finds that the descendants of one million people would after 100 years only amount to 347,000 souls.

"To counteract the modern tendency to race suicide, von Gruber proposes: (1) Improvement of the economic condition of families with many children by proper laws. (2) Limitation of the economic advantages of childlessness. (3) Suppression of those agencies which, for pecuniary gains, spread the vice of race suicide. He takes an energetic stand against those modern 're-

formers' who would loosen the marriage ties. He considers the modern monogamous marriage the only basis of healthy sexual relations. Freedom in marriage would become 'free love' and end in general sterility. He condemns the claim of the law committee of the Federation of German Women, who maintain that 'as a free person woman is the mistress over her own body and may destroy a germ which, in its initial stage, is an inseparable part of her own body.' The ideal of woman's emancipation has never been more nearly approached than in Imperial Rome, where sterility was a general phenomenon.

"It is nothing but just that the state bear a part of the expenses of parents with a numerous family. Parents who have three or more normal and healthy children under fourteen years should be paid a monthly contribution, and if they have raised three or more children they should receive an old age pension when they have reached the age of sixty years. Besides these economic advantages von Gruber would give a father of three or more children a plural vote at all elections proportional to the number of his children. A large portion of the sums expended in the assistance of families with many children could be procured by a tax on the incomes of bachelors and parents with few or no children. Von Gruber proposes severe laws against the 'propaganda for the two-children system,' as well as severe penalties on criminal abortion and on the advertisement and sale of drugs and other means for the prevention of conception."

THE COUPON SYSTEM OF MEDICAL INSTRUCTION.

BOSTON, September 19, 1914.

Mr. Editor: In the issue of September 17, the JOURNAL was kind enough to comment upon a certain phase of instruction at the Harvard Graduate School of Medicine, in an editorial entitled "The Coupon System of Medical Instruction." Permit me first to express my appreciation of the friendly spirit of cooperation shown by the JOURNAL, in thus helping to make known some of the opportunities which the Graduate School offers to the local profession. This appreciation is not lessened in the least by the fact that you call attention to criticisms which have been made in connection with this plan of instruction. Since, however, the JOURNAL has mentioned these criticisms, I hope you will grant me a little space to discuss them, for it seems to me that these criticisms arise from an imperfect understanding of conditions.

You say: "In fairness, it should be noted that the coupon system has been criticized as encouraging superficiality and as reducing post graduate medical teaching to a commercial basis inconsistent with its dignity."

Does it encourage superficiality? Such was not the intention of the Graduate School in inaugurating this system. Coupon holders are admitted to only about one-third of the courses. They are not admitted to systematic courses, in which the opportunity to profit by an exercise is dependent upon the previous exercises of the course. In the courses that are open to coupon holders the individual exercise is exactly the same, whether the student pays for it by a course ticket or by coupon tickets. The individual exercise is superficial or otherwise as the instructor makes it, —according to its intrinsic worth, not according to the way it is paid for. The argument then reduces itself to this, that one or a few exercises give a student less knowledge than does a complete course. To this we must all agree.

Unfortunately, however, the large majority of physicians cannot spare enough time from their professional duties to take complete courses. The Graduate School was confronted with this problem,—should it limit its opportunities to those who could take complete courses, or should it try also to help those who could spare less time. It decided on the latter plan. "Half a loaf is better than no bread." Consequently, it was the custom, long before the Graduate School was organized, to offer special rates for half courses, or for parts of courses. We have now gone a step farther and admit to single exercises,—on the principle that even a slice of bread is acceptable to a hungry man, if he cannot get more. The system of payment by coupons is merely the most practicable way that could be devised to make this plan workable.

The Graduate School recognizes frankly that this is not an ideal system. It would encourage all to take a more thorough course of instruction, if they can. It desires, however, to help those who can spare only a little time for further study; it aims to reach those who might otherwise get no instruction at all; and it hopes that many of these persons will find the exercises so interesting that they will seek more extensive courses. It believes that the plan on the whole will tend to diminish and not to increase superficial or incomplete knowledge on the part of the medical profession. Above all the School is especially interested in helping the profession and the public in our own section of the country. We wish to do all we can for our neighbors.

Does this plan tend to reduce graduate medical teaching to "a commercial basis inconsistent with its dignity?" Much depends on the interpretation given to the word "commercial."

Unfortunately the Graduate School was necessarily placed on a business basis,—that is, it must be self-supporting. Harvard University had no funds that could be spared for this department of teaching; the Graduate School has no endowment, and it is dependent upon the fees received from students. In this sense the School must for the present be on a commercial basis, and such loss of dignity as comes from this fact, if there really is any, must be endured.

But the school is not on a commercial basis in the sense that it seeks to make money, directly or indirectly, for itself or for its teachers. It aims to give as thorough instruction as is given by the Harvard Medical School, although the latter has large endowments. For this it charges very moderate fees, wishing only to pay its expenses and to give the instructors reasonable remuneration. Under the circumstances the fact that a fee is charged does not place the teaching on a commercial basis, in the bad sense of the word. The instructors are so poorly paid for their work that they must be acquitted of any commercialism, and it must be plain that they are actuated chiefly by a sense of duty and a desire to be of service to the profession.

The school and its methods are "commercial," therefore, only in the sense that the school must be self-supporting. We are unfortunately obliged to use business-like methods in collecting fees. The system of payment by coupons is only a variation of these methods. It makes it unnecessary for the student to make a special arrangement with the dean's office whenever he wishes to attend a single exercise. It makes a little extra trouble for the instructor. Some instructors have felt at first that the collection of coupons was disagreeable, yet, when they have understood the problem, they have willingly agreed to do this for the convenience of the students. If this method is properly understood, I think it does not in

any way lower the dignity of graduate instruction. I should as soon think that a physician loses his professional dignity if he accepts cash payment for a single visit to a patient.

I welcome the opportunity to make this explanation,—not only about coupons but about the general attitude of the school in charging for instruction. No right-minded physician will object to business-like methods. The school cannot supervise attendance in its many scattered clinics, except through its instructors. In justice to those who pay, we must see that others do not have the same privileges without payment. Physicians will make this duty of the instructors less disagreeable, if they have a ticket or coupons to present before entering a clinic, and if they offer them to the instructors at a convenient time.

H. D. ARNOLD, M.D.,
Dean of the Graduate School of Medicine.

A COMPLICATION OF TYPHOID IMMUNIZATION.

BOSTON, Sept. 22, 1914.

Mr. Editor: Recently I inoculated a man in the left arm with typhoid prophylactic. On the day following the inoculation, he complained of severe pain along the right sciatic nerve, and he had a temperature of 101°. He informed me that he had suffered with sciatica a year before.

The pain had greatly subsided by the tenth day, but he refused a second inoculation. The effect of the typhoid prophylactic in this case is in accord with the observations already made, namely, that the use of typhoid prophylactic may cause a recurrence of latent diseases.

Yours very truly,

GAETANO PRAINO, M.D.

MASSACHUSETTS MEDICAL SOCIETY.

NOTICE TO COUNCILORS.

A stated meeting of the Council of the Massachusetts Medical Society will be held in John Ware Hall, Boston Medical Library, Wednesday, October 7, 1914, at 12 noon.

WALTER L. BURRAGE, *Secretary*...

SOCIETY NOTICES.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The Fall Meeting will be held in Sprague Hall, Medical Library, Boston, on Wednesday, October 7, 1814, at two o'clock.

The following papers and addresses will be read and discussed:—

1. The Work of the Medical Examiner and the District Attorney and Their Relations to Each Other. Hon. Albert F. Barker, District Attorney, Southeastern District.
2. The Murder of George E. Marsh. Joseph G. Pinkham, M.D., Medical Examiner, of Lynn.
3. Presentation of Cases. Prof. Timothy Leary, Medical Examiner, of Boston.

OLIVER H. HOWE, M.D., *Recording Secretary.*
Cohasset, September 28, 1914.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING SEPT. 19, 1914.

Sept. 11, Surgeon C. E. Riggs, Naval Training Station, Norfolk, Va.

P. A. Surgeon G. A. Riker, detached, Bureau Medicine and Surgery, Navy Department, Washington, D. C., to *Texas.*

P. A. Surgeon A. B. Hayward, from *Colorado* to Naval Station Samoa.

Sept. 12, Surgeon A. J. Geiger, to Receiving Ship, Puget Sound.

P. A. Surgeon C. B. Munger, from Receiving Ship, Puget Sound, to Naval Hospital, Mare Island, Cal.

P. A. Surgeon C. B. Camerer, from Mare Island Hospital to Mare Island, Navy Yard.

Asst. Surgeon H. A. Tribou, from *Nebraska* to *Petrel.*

Asst. Surgeon J. C. Parham, from Naval Station, Samoa, to *St. Louis.*

Asst. Surgeon C. H. Dragoo, from *Petrel* to *Nebraska.*

Sept. 16, P. A. Surgeon N. T. McLean, from *New Orleans* to Naval Hospital, Mare Island, Cal.

Asst. Surgeon W. A. Brams, commissioned from Aug. 15, 1914.

Sept. 17, Surgeon H. D. Wilson, to Washington, D. C., for examination for promotion.

The following Assistant Surgeons M.R.C., have been ordered to the Naval Medical Schools, Washington, D. C.

William McKinney, W. E. Lawhead, R. A. Torrence, A. E. Man, F. H. Bowman, W. W. Wickersham, N. M. McClelland, C. S. O'Brien, W. H. Michael, C. F. Glenn, C. H. Weaver, J. H. Harris, J. A. Omer, J. T. Boone, A. R. Barrow, C. I. Wood, J. M. Quinn, A. L. Bass, W. A. Stoops, and C. E. Faulkner.

APPOINTMENTS.

JEFFERSON MEDICAL COLLEGE.—*Raymond H. Miller, B.S.*, and *J. O. Halverson, M.S.*, have been appointed instructors in physiologic chemistry.

RECENT DEATHS.

DR. BENJAMIN CLARENCE SENTON, a graduate of the Harvard Medical School in 1871, died at his residence, 58 Waverley Street, Roxbury, Sept. 1, 1914, of heart disease. He had not been in practice. At one time he was captain in the New York National Guard.

DR. J. H. BELL, who died recently in Liverpool, was born at Montreal in 1864. He received the degree of M.D. from McGill University, and since 1898 had served as a surgeon of the White Star Line.

DR. EUGENE B. CUSHING, who died on Sept. 21 in Lynn, Mass., was born at Burke, Vt., in 1846. He received the degree of M.D. from the Philadelphia Hahnemann College in 1871, and since that time had practised his profession in Lynn. He is survived by his widow.

DR. PITTS EDWIN HOWES, who died recently at Dorchester, Mass., was a graduate of the Cincinnati Eclectic Medical Institute in 1881. He was a member of the National, Massachusetts, and Boston Eclectic Medical Societies.

DR. JAMES KOSSUTH KING, of Watkins, N. Y., died on Sept. 20. He was born in Troy, N. Y., in 1849, and was graduated from Ann Arbor University and from the College of Physicians and Surgeons, New York, in 1877. After pursuing special studies at Vienna, Berlin, London and Edinburgh, he was appointed assistant master of the Rotunda Hospital, Dublin, in 1888. Later, he became one of the medical staff at the Clifton Springs Sanitarium, and in 1890 was instrumental in organizing the Glen Springs Sanitarium at Watkins, of which institution he was medical director for twenty years. At the time of his death he was consulting physician. Among the societies of which Dr. King was a member was the Royal Obstetrical Society of England.

DR. STANLEY FORBES DUNCAN, a graduate of the Tufts College Medical School in 1912, died at Quincy, Mass., Sept. 23, of Hodgkin's Disease.